

مشروع القطار الكهربائي السريع القطاع الخامس

تنفيذ شركة الذهبى للمقاولات

من الكم 720 + 638 الي 642+500

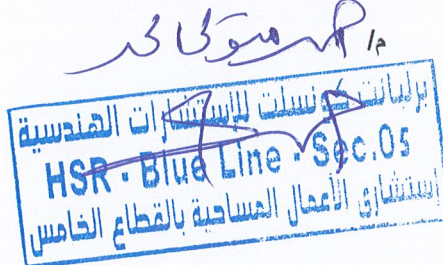
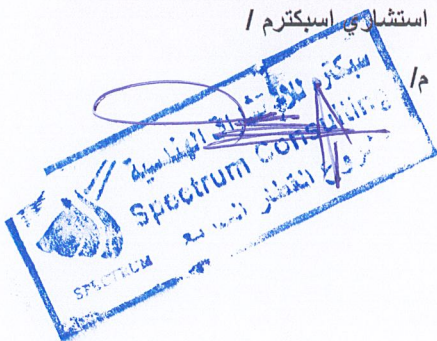
بيان اعمال توضيحي لمستخلص جاري (2) عقد (2024/2023/306)

العقد	قيمة العقد	المستخلص	كميات حفر تربة عادية	كميات الردم
(2024/2023/306)	عشرون مليون	جاري 1	-	23,100.00
		جاري 2	10,000.00	121,500.00
كميات تم حصرها				
اجمالي كميات تم حصرها				
كميات تم صرفها				
اجمالي كميات تم صرفها				
المتبقي من الكمية				

استشاري اسبكتروم /

استشاري المساحة مكتب برليانت /

مهندس الشركة المنفذة /



السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،،

نتشرف ان نرفق لسيادتكم عدد ١ مقايضة معدلة ٢ لمشروع اعمال انشاء الجسر الترابي للقطار الكهربائي السريع ٦ أكتوبر

أبوسمبل (القطاع الخامس) من الكم ٥٧٩ + ٦٤٠ حتي الكم ٦٤١ + ٢٣٦ على ان تراجع الأسعار بمعرفة الإدارة بالقاهرة .

اعداد المكتب الاستشاري سبكترم للاستشارات الهندسية وعلي مسئوليته .

تنفيذ شركة الذهبى للمقاولات

برجاء التكرم بالعلم والتوجيه باللازم

وتفضلوا بقبول وافر التحية والإحترام ،،،،

تحريرا فى ٢٠٢٣/١٢/١٩

المرفقات / عدد (١) مقايضة



مهندس /

عماد حسين



الهيئة العامة للطرق والكبارى

وزارة النقل

مقايسة معدلة 2) جزئية لبنود لأعمال (

مشروع : الجسر الترابى للقطار السريع (أكتوبر / أبو سمبل)

القطاع الخامس من الكم 629 + 110.13 إلى الكم 715 + 624.63 بطول 86.52 كم

من إحداثى E 489929.6671 و N 2874215.5671

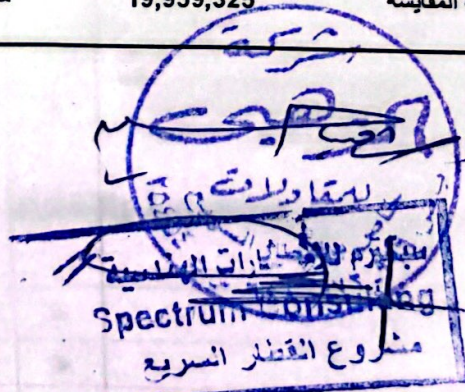
إلى إحداثى E 440168.6522 و N 2817778.3175

إستشارى القطاع سيكترم للإستشارات الهندسية د . م . / عماد الدين نبيل

تنفيذ الشركة: / الذهبى للمقاولات فئة : الرابعة بقيمة : مليون

من الكم 640 + 579 إلى الكم 641 + 236 بطول 657 م

قيمة المقايسة 19,959,325 مليون



المقاول /

الإستشارى /

المنطقة الثامنة بقنا /

أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل)				
من محطة 110.13 + 629 حتى محطة 624.63 + 715 بطول 86.5145 كم				
تنفيذ شركة / الذهبى يوسف للمقاولات العمومية من محطة 640+579 الي 641+236 بطول 657 م				
الاجمالي	سعر الفقة	الكمية	الوحدة	بيان الأعمال
				أعمال الحفر
				2-1
575,000	23.00	25,000.000	3م	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية لجميع أنواع التربة عدا التربة الصخرية وتسوية السطح بالأت التوسية والرش بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الأتربة الزائدة لمسافة 500 متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التنفيذية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.
				- علاوة 1 جنبة /كم لمسافة نقل نتائج الحفر وتصنيع 1.1 جنبة/كم ابتداء من 4/5/2023
				- علاوة زيادة السولار 0.7 جنبة /3م ابتداء من 4/5/2023
28	1.10	25,000	3م	علاوة مسافة النقل 1 كم
17,500	0.70	25,000.000	3م	علاوة زيادة السولار
				3
				Embankment أعمال الردم
				3-1
17,604,997	60.00	293,416.617	3م	أعمال تحميل وتوريد ونقل أتربة مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسك لا يزيد عن 50 سم حتى منسوب (2- متر) اسفل منسوب الغرمة و بسك لا يزيد عن 25 سم اعلى من منسوب (2- متر) من منسوب الغرمة لاستكمال المنسوب التصميمي لتشكيل الجسر والاكثاف (نسبة تحمل كاليفورنيا حتى 15%) ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (95%) من الكثافة الجافة القصوى) ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التنفيذية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.
				- فى حالة طلب جهاز الإنتراف زيادة نسبة الدمك عن 95% بحسب زيادة 1 جنبة على زيادة نسبة الدمك لكل 1%.
				- مسافة النقل حتى 2 كم و يتم احتساب علاوة 1.4 جنبة لكل كم بالريادة أو النقصان وتصيح 1.5 جنبة /كم ابتداء من 4/5/2023.
				- السعر يشمل عمل تشوينات و تخليط و اختبارات و نقل لمواقع العمل حتى مسافة 2 كم .
				- علاوة زيادة السولار 1.9 جنبة /3م ابتداء من 4/5/2023
				- السعر لا يشمل قيمة المادة المحجيرة.
				4
				Prepared Subgrade طبقة تأسيس
				4-1
650,000	130.00	5,000.000	3م	بالمتر المكعب أعمال توريد وفرش طبقة تأسيس (Prepared Subgrade) من الأحجار الصلبة المترجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات 100 مم وألا تزيد نسبة المار من مخل 200 عن 12% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن 25% وألا تزيد نسبة الفاقد بجهاز لوس أنجلوس عن 30% وألا يزيد الامتصاص عن 15% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن 80 ميجاباسكال ويتم فردها على طبقتين باستخدام آلات التسوية الحديثة على أن لا يزيد سمك الطبقة بعد تمام الدمك عن 25 سم ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن 95%) من الكثافة المعملية والفقة تشمل إجراء التجارب المعملية والحقلية ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التنفيذية والبند بجميع مشتملاته طبقاً للمواصفات الفنية للمشروع وتقرير الاستشارى وتعليمات المهندس المشرف.
				- مسافة النقل لا تقل عن 20 كم.
				- يتم احتساب علاوة 1.2 جنبة لكل 1 كم بالزيادة أو النقصان وتصيح 1.3 جنبة /كم ابتداء من 4/5/2023.
				- السعر لا يشمل قيمة المواد المحجيرة.
				- علاوة زيادة السولار 1.8 جنبة /3م ابتداء من 4/5/2023
884,000	104.00	8,500.000	3م	مسافة نقل 100 كم
212,500	25.00	8,500.000	3م	كارتة توريد الأساس
15,300	1.80	8,500.000	3م	علاوة زيادة السولار
19,959,325				الاجمالي

يعتمد
رئيس الإدارة المركزية
المنطقة الثامنة (قنا)
السيد المهندس / عماد حسين
التوقيع

مهندس هيئة الطرق والكبارى
(المنطقة الثامنة - قنا)
المهندس /
التوقيع

مدير المشروع (الاستشارى)
المهندس /
التوقيع

مهندس الشركة المنفذة
المهندس /
أحمد شعبان
التوقيع

شركة
الذهبى
للمقاولات
خاص بالقطار الكهربائي
٢٠٢٥
٦٤٨ - ٥٧٢ - ٦٤٨



مجلس أمانة حيدر كوت



التاريخ: 25/11/2023

اسم المشروع: مشروع القطار الكهربائي السريع (KOR - HAWA - JORDAN) (القطاع الخامس)

قامت شركة بريلات كونسولت انجنييرونج (استشاري الأعمال الهندسية للمباني والطرق والكباري)

بإعداد الكميات البنكية الخاصة بشركة الأهلي القمار

م	من المنطقة رقم	إلى المنطقة رقم	الكمية	الكمية رقم القمار	الاسم
1	540+120	540+200	أعمال القطار	14051.66	أعمال قطع على (REV05)
إجمالي الكمية			14051.66		

حضر جاري (2)
الموافق:
تسليم ميزانية شبكة
المطامير
شيت الشيفت موضح به الكميات



استشاري المصمم / مكتب بريلات
KOR - HAWA - JORDAN
4

مهندس السرعة المتقدمة
أحمد محمد محمد

بريلات كونسولت للاستشارات الهندسية
HSR - Blue Line - Sec.05
إستشاري الأعمال المساحة بالنظام الخاص



حصر كميات القطع مستخلص جاري (2) شركة الذهبي
(637+952-643+863) مشروع القطار السريع القطاع
الخامس (قوس /ارمنت)

Station	Cut Area (Sq.M.)	Cut Volume (Cu.M.)	Cum. Cut Vol. (Cu.M.)
640+120.00	4.61	46.07	46.07
640+140.00	83.74	883.49	929.56
640+160.00	276.03	3,597.70	4,527.26
640+180.00	309.59	5,856.19	10,383.46
640+200.00	57.23	3,668.21	14,051.66
اجمالي الكمية بالمتر المكعب		14,051.66	

إمالة كوئست للمهندسين
HSR - Blue Line - Sep.05
استشاري الأعمال المسجلة بالقطاع الخامس



RECEIPT of NOTIFICATION - MINIMUM NOTICE Period (not less than 24 Hours)

It is hereby confirmed that the contractor has received the notification to attend the inspection.

Location Name		Contractor Company		Designer Company	
From 640+120 to 640+200		EL-ZAHABY contraction		(SPECTRUM) Engineering Consulting Office	
Issued by Contractor	Name Eng. Ahmed Shoaib Hassan	Sign 	Date 26/11/2023	Time 10:00 AM	
Contractor QR Reference	ZF-AS-BUILT (01)				Revision 5
Received by EA			UN	CP	EW

CODE 1 11-11-11 Contract Reference	CODE 2 11-11-11 Survey Reference	CODE 3 11-11-11 For Contractor and EA	CODE 4 11-11-11 Track Activity	CODE 5 11-11-11 For Drawing of Assets
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DESCRIPTION OF WORK TO BE INSPECTED		
Area	Element	Note
	From 640+120 to 640+200	As-built (حضر كتيبات القطع)
Inspection Description: حضر كتيبات القطع (as-built)		

Planned Inspection Data		Planned Inspection Time	
		10:00 AM	

COMPLIANCE CHECKED (Mark as Satisfactory or Not)			
Checklist Attached <input type="checkbox"/>	Test Results Attached <input type="checkbox"/>	Callibration Attached <input type="checkbox"/>	Other as Indicated <input type="checkbox"/>
Drawing Reference	ITP Reference		MS Reference

Comments by (Contractor)	Comments by (SPECTRUM) QMS	Comments by (SPECTRUM) QMS
تم التفتيش على البنية التحتية منطقة العمل والبنية التحتية منطقة العمل والبنية التحتية نسبة 100%	تم التفتيش على البنية التحتية منطقة العمل والبنية التحتية منطقة العمل والبنية التحتية نسبة 100%	

INSPECTION RESULT					Approval Status	Issue Task if not satisfied
Organization	Name	Sign	Date	Time	AS-BUILT	
Brilliant Survey	أحمد شوايب حسن		27-11-2023			
SPECTRUM	أحمد شوايب حسن		28/11/23			
QA/QC						
Employer representation						

POINT NUM	NORTH	EAST	ELEVATION	DESCRIPTION	الوصف
127726	2863809.677	491427.591	128.183	CUT	قطع
127727	2863812.013	491431.401	128.162	CUT	قطع
127728	2863815.788	491436.124	128.021	CUT	قطع
127729	2863820.177	491441.846	127.859	CUT	قطع
127730	2863815.479	491454.198	128.232	CUT	قطع
127731	2863810.8	491450.1	128.227	CUT	قطع
127732	2863806.097	491446.127	128.229	CUT	قطع
127733	2863802.591	491440.038	128.307	CUT	قطع
127734	2863799.369	491434.965	128.287	CUT	قطع
127735	2863796.675	491430.99	128.207	CUT	قطع
127736	2863787.563	491433.001	128.48	CUT	قطع
127737	2863791.272	491438.223	128.376	CUT	قطع
127738	2863795.922	491443.9	128.301	CUT	قطع
127739	2863799.81	491448.952	128.299	CUT	قطع
127740	2863803.522	491454.215	128.258	CUT	قطع
127741	2863808.164	491459.979	128.468	CUT	قطع
127742	2863799.882	491464.712	128.545	CUT	قطع
127743	2863794.819	491459.746	128.309	CUT	قطع
127744	2863789.829	491455.165	128.443	CUT	قطع
127745	2863786.461	491449.987	128.471	CUT	قطع
127746	2863783.399	491443.95	128.608	CUT	قطع
127747	2863780.384	491438.582	128.655	CUT	قطع
127748	2863778.595	491434.527	128.646	CUT	قطع
127749	2863767.442	491439.542	128.504	CUT	قطع
127750	2863771.434	491445.25	128.448	CUT	قطع
127751	2863775.851	491450.751	128.531	CUT	قطع
127752	2863780.318	491456.828	128.224	CUT	قطع
127753	2863784.921	491462.655	128.341	CUT	قطع
127754	2863789.004	491467.754	128.268	CUT	قطع
127755	2863792.525	491471.712	128.514	CUT	قطع
127756	2863783.078	491477.783	128.65	CUT	قطع
127757	2863778.685	491472.714	128.214	CUT	قطع
127758	2863773.935	491468.15	128.211	CUT	قطع
127759	2863769.788	491464.735	128.133	CUT	قطع
127760	2863764.103	491457.987	128.318	CUT	قطع
127761	2863763.84	491451.866	128.319	CUT	قطع
127762	2863760.928	491446.015	128.463	CUT	قطع
127763	2863757.565	491442.09	128.512	CUT	قطع
127764	2863745.369	491446.123	128.104	CUT	قطع
127765	2863750.724	491450.92	128.335	CUT	قطع

الهيئة الوطنية للأمن والنقل
HSR - Blue Line - Sec.05
استشاري الأعمال المتكاملة بالقطاع الخاص

تم الموقع للطعام من 540+120 الى 540+200 بتاريخ 2023-11-26

أحمد محمد محمد



POINT NUM	NORTH	EAST	ELEVATION	DESCRIPTION	الوصف
127766	2863755.879	491457.358	128.171	CUT	قطع
127767	2863760.439	491463.479	128.217	CUT	قطع
127768	2863764.516	491468.656	128.215	CUT	قطع
127769	2863768.729	491474.096	128.076	CUT	قطع
127770	2863772.85	491479.551	128.143	CUT	قطع
127771	2863775.839	491482.833	128.267	CUT	قطع
127772	2863767.969	491490.209	128.391	CUT	قطع
127773	2863762.068	491484.55	128.087	CUT	قطع
127774	2863756.568	491479.238	128.228	CUT	قطع
127775	2863751.201	491473.724	128.163	CUT	قطع
127776	2863746.832	491467.422	128.194	CUT	قطع
127777	2863743.566	491460.443	128.297	CUT	قطع
127778	2863739.827	491452.138	128.156	CUT	قطع
127779	2863735.393	491464.775	128.166	CUT	قطع
127780	2863731.93	491470.14	128.403	CUT	قطع
127781	2863745.535	491477.393	128.18	CUT	قطع
127782	2863750.11	491482.522	128.218	CUT	قطع
127783	2863755.134	491489.223	128.22	CUT	قطع
127784	2863761.728	491495.155	128.246	CUT	قطع
127785	2863753.746	491505.697	128.308	CUT	قطع
127786	2863748.842	491499.826	128.021	CUT	قطع
127787	2863744.398	491494.909	128.021	CUT	قطع
127788	2863738.556	491489.678	128.335	CUT	قطع
127789	2863735.246	491484.759	128.167	CUT	قطع
127790	2863734.2	491478.377	128.111	CUT	قطع
127791	2863734.547	491470.367	128.135	CUT	قطع
127792	2863735.692	491463.487	128.238	CUT	قطع
تم الموقع للطعام من 640+120 الى 640+200 بتاريخ 2023-11-26					

إمبانت كوتيجات للتشييد الخاصة
 HSR - Bypass Line Sec.05
 استشاري الأعمال المتكاملة للطعام

أحمد شفيق جليل



تم الموقع للطعام من 640+120 الى 640+200 بتاريخ 2023-11-26



مجلس الشركة مصر كابوت



تاريخ: 25/10/2023

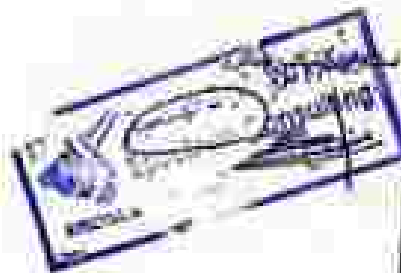
إلى: المندوبين الموزعين (الكابوت) حول المخطط (المخطط)

لقد تم الاتفاق على أن تكون الشركة المسجلة في السجل التجاري (المخطط) هي التي ستقوم بتوفير

بموجب المخطط المخطط المخطط المخطط

رقم	من المخطط رقم	في المخطط رقم	المخطط	المخطط رقم	المخطط
1	630+720	630+120	المخطط رقم	57555.35	المخطط رقم (REV00)
2	630+580	630+720	المخطط رقم	4467.34	المخطط رقم (REV05)
3	630+780	630+920	المخطط رقم	6400.58	المخطط رقم (REV05)
4	641+280	641+700	المخطط رقم	40872.17	المخطط رقم (REV00)
5	642+220	642+480	المخطط رقم	10635.97	المخطط رقم (REV05)
المخطط رقم			المخطط رقم	128031.31	

مجلس الشركة مصر كابوت
المخطط رقم
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المندوبين الموزعين (الكابوت) حول المخطط (المخطط)

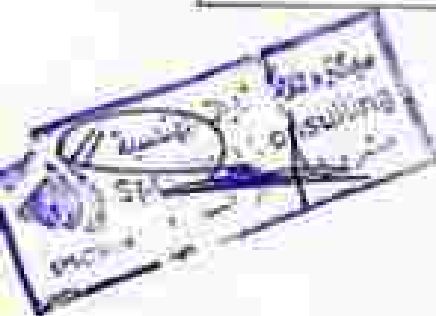
المندوبين الموزعين (الكابوت) حول المخطط (المخطط)

المندوبين الموزعين (الكابوت) حول المخطط (المخطط)



حصر كميات الردم مستخلص جاري (2) شركة الذهبى
(637+952-643+863) مشروع القطار السريع القطاع
الخامس (قوص / ارمينت)

Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
638+720.00	81.08	810.78	810.78
638+740.00	86.15	1,672.25	2,483.03
638+760.00	89.3	1,754.50	4,237.53
638+780.00	91.69	1,809.96	6,047.49
638+800.00	82.87	1,745.60	7,793.09
638+820.00	93.47	1,763.37	9,556.46
638+840.00	130.87	2,243.40	11,799.86
638+860.00	139.32	2,701.92	14,501.78
638+880.00	135	2,743.19	17,244.97
638+900.00	132.92	2,679.18	19,924.15
638+920.00	131.13	2,640.52	22,564.67
638+940.00	177.65	3,087.78	25,652.45
638+960.00	191.18	3,688.30	29,340.75
638+980.00	196.98	3,881.67	33,222.42



برقيات كونسولت للإستشارات الهندسية
HSR - Blue Line - Sec.05
استشارى الاعمال المساحية بالقطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
639+000.00	204.27	4,012.56	37,234.98
639+020.00	190.9	3,951.73	41,186.71
639+040.00	165.5	3,564.07	44,750.78
639+060.00	166.94	3,324.41	48,075.19
639+080.00	154.71	3,216.42	51,291.61
639+100.00	154.15	3,088.56	54,380.17
639+120.00	163.37	3,175.19	57,555.36
639+580.00	12.79	127.86	57,683.22
639+600.00	20.01	327.93	58,011.15
639+620.00	27.24	472.45	58,483.60
639+640.00	34.28	615.2	59,098.80
639+660.00	45.98	802.61	59,901.41
639+680.00	41.84	878.13	60,779.54
639+700.00	31.64	734.79	61,514.33
639+720.00	19.19	508.36	62,022.69
639+780.00	44.98	449.76	62,472.45
639+800.00	38.63	836.06	63,308.51
639+820.00	32.93	715.59	64,024.10



درجات کوئٹہ لائسنسنگ ایجنسی
HSR - Blue Line - Sec. 05
انسٹانسی لائسنسنگ ایجنسی



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
639+840.00	30.28	632.1	54,856.20
639+860.00	37.18	674.58	55,330.78
639+880.00	39.76	769.4	56,100.18
639+900.00	34.12	738.81	56,838.99
639+920.00	24.31	584.28	57,423.27
641+260.00	125.61	1,256.08	58,679.35
641+280.00	122.24	2,478.53	71,157.88
641+300.00	131.61	2,538.59	73,696.47
641+320.00	121.04	2,526.52	76,222.99
641+340.00	124.99	2,460.31	78,683.30
641+360.00	118.24	2,432.34	81,115.64
641+380.00	121.69	2,399.27	83,514.91
641+400.00	119.02	2,407.10	85,922.01
641+420.00	109.13	2,281.56	88,203.57
641+440.00	80.83	1,899.68	90,103.25
641+460.00	90.34	1,711.74	91,814.99
641+480.00	94.91	1,852.48	93,667.47
641+500.00	84.89	1,797.94	95,465.41
641+520.00	79.41	1,643.00	97,108.41

إمارة أبوظبي
HSR-Bridge-sec.05
مخطط العمل المساعد القطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
641+540.00	72.99	1,524.02	98,632.43
641+560.00	61.44	1,344.33	99,976.76
641+580.00	72.47	1,339.16	101,315.92
641+600.00	66.58	1,390.53	102,706.45
641+620.00	67.79	1,343.68	104,050.13
641+640.00	49.04	1,168.28	105,218.41
641+660.00	46.26	953.04	106,171.45
641+680.00	46.11	923.77	107,095.22
641+700.00	53.08	991.9	108,087.12
641+720.00	51.31	1,043.88	109,131.00
641+740.00	43.64	949.52	110,080.52
641+760.00	31.68	753.24	110,833.76
641+780.00	24.48	561.68	111,395.44
642+220.00	39.04	390.41	111,785.85
642+240.00	40.74	797.82	112,583.67
642+260.00	42.71	834.53	113,418.20
642+280.00	48.82	915.35	114,333.55
642+300.00	48.27	970.9	115,304.45

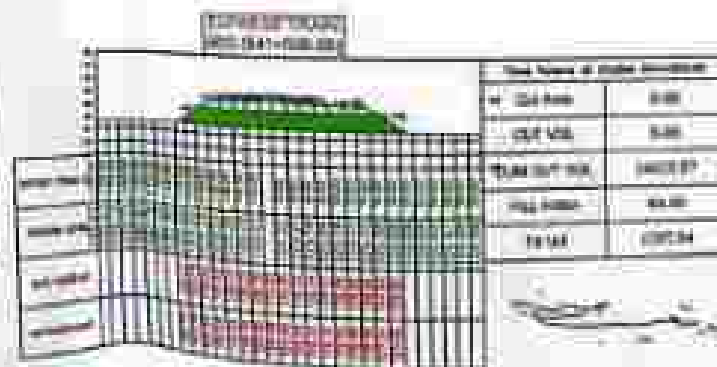
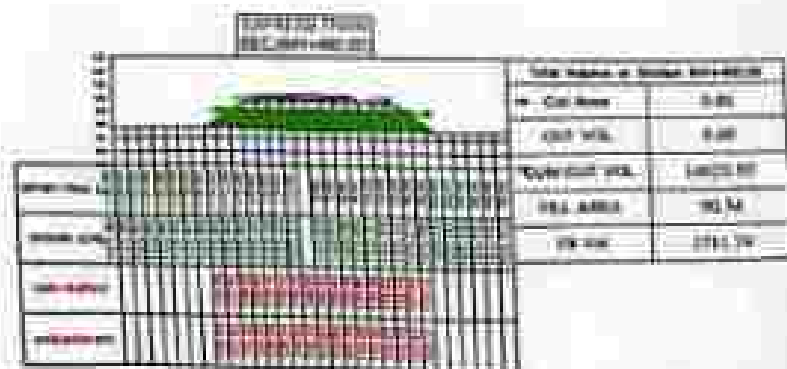
إمارة دبي
السلطة العامة للمواصلات
HSR - Blue Line - Sec.05
إستراتيجي للأعمال المتعددة القطاع الخامس



Station	Fill Area (Sq.M.)	Fill Volume (Cu.M.)	Cum. Fill Vol. (Cu.M.)
642+320.00	52.13	1,004.02	116,308.47
642+340.00	65.65	1,177.82	117,486.29
642+360.00	69.57	1,352.22	118,838.51
642+380.00	68.51	1,380.79	120,219.30
642+400.00	77.55	1,460.60	121,679.90
642+420.00	80.79	1,583.49	123,263.39
642+440.00	80.54	1,613.37	124,876.76
642+460.00	83.45	1,639.89	126,516.65
642+480.00	88.02	1,714.66	128,231.31
اجمالي الكمية بالمتر المكعب		128,231.31	

إمارة دبي
إمارة دبي
HSR - Blue Line - Sec.05
إمارة دبي





HSR-Egypt

HSP Blue Line

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PROJEKTION
NOC-04-01-01

1. Projektname: _____

2. Projektziele: _____

3. Projektorganisation: _____

4. Projektbudget: _____

5. Projektfortschritt: _____

6. Projektabschluss: _____

7. Projektbewertung: _____

8. Projektanhang: _____

9. Projektanmerkungen: _____

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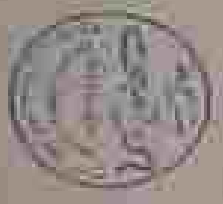


Table 1: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
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Table 2: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
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Table 3: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
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Table 4: Student Details

Sl. No.	Name of the Student	Roll No.	Grade	Section
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<p>Teacher's Signature</p> <p>_____</p>		<p>Teacher's Name</p> <p>_____</p>	
<p>Principal's Signature</p> <p>_____</p>		<p>Principal's Name</p> <p>_____</p>	
<p>Headmaster's Signature</p> <p>_____</p>		<p>Headmaster's Name</p> <p>_____</p>	
<p>Inspector's Signature</p> <p>_____</p>		<p>Inspector's Name</p> <p>_____</p>	
<p>Sub-inspector's Signature</p> <p>_____</p>		<p>Sub-inspector's Name</p> <p>_____</p>	
<p>Patil's Signature</p> <p>_____</p>		<p>Patil's Name</p> <p>_____</p>	
<p>Patil's Address</p> <p>_____</p>		<p>Patil's Phone No.</p> <p>_____</p>	
<p>Patil's Email ID</p> <p>_____</p>		<p>Patil's Date of Birth</p> <p>_____</p>	
<p>Patil's Date of Admission</p> <p>_____</p>		<p>Patil's Date of Completion</p> <p>_____</p>	
<p>Patil's Date of Issuance</p> <p>_____</p>		<p>Patil's Date of Validity</p> <p>_____</p>	

		Date: _____ Page: _____	
Name: _____ Address: _____ City: _____		State: _____ Zip: _____	
School: _____ Teacher: _____		Parent: _____ Phone: _____	

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total	Score	1500

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total	Score	1500

Mathematics

Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total	Score	1500

Mathematics

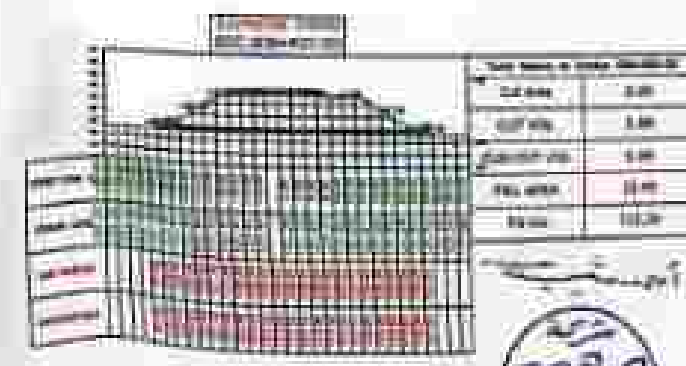
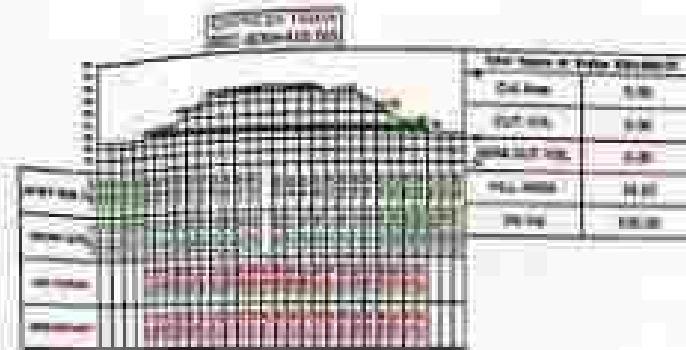
Unit	Topic	Score
1	Number and Numeration	100
2	Measurement	100
3	Geometry	100
4	Algebra	100
5	Statistics	100
6	Science	100
7	Language Arts	100
8	History	100
9	Physical Education	100
10	Art	100
11	Music	100
12	Health	100
13	Environmental Studies	100
14	Foreign Languages	100
15	Other	100
Total	Score	1500

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PROJECT INFORMATION

Project Name: [Blank]

Client: [Blank]

Location: [Blank]

Scale: [Blank]

DESIGNER INFORMATION

Designer: [Blank]

Address: [Blank]

Phone: [Blank]

APPROVALS

Client Signature: [Blank]

Designer Signature: [Blank]

Stamp: [Blank]

NOTES

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شركة المدين للمطارات و الترانزيت المصرية :

Project : Electric Express Train - Sector (5) - Gaze to Arment.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements.
Test Location : Station (641+300 to 641+440)
Test Date : 25/07/2023
Report Date : 26/07/2023
Type of soil : Original earth.
Report No. : 1 : 2

Dear Gentlemen,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 20 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement.
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with coils capacity 700 bar (Enerpac).
7. Reaction loading system by roller compactor with weight approximately 15 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 30 seconds.
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the limit values are 5.0 kPa/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached.
7. Each stage in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, in 60 %, 20 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test.
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

- Type of soil : Original earth
- Job requirement : $E_{v2} > 40 \text{ MPa}$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	25/07/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	Eval E_{v2} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (MPa)}$	
1	641+300	641+400	641+350	-4.5	76.4	140.8	1.77
2	641+400	641+440	641+420	-4.5	106.4	118.5	1.11

Signature /

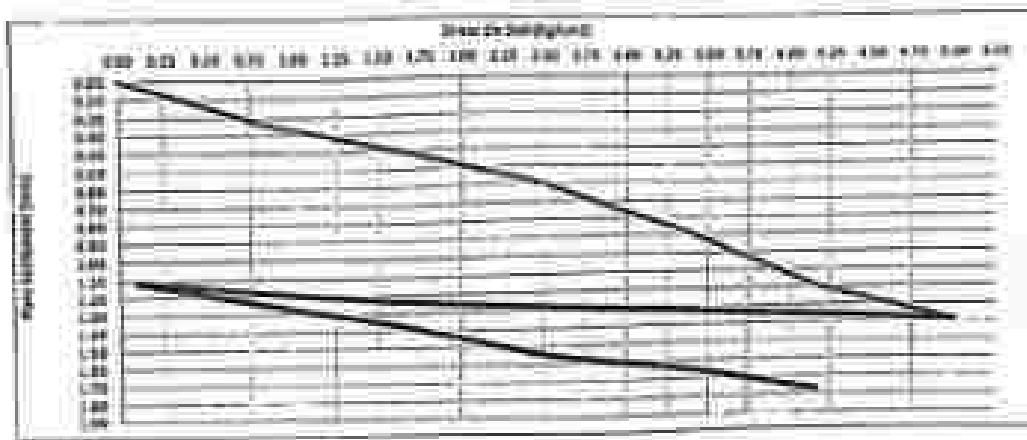
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Company Name
Project
Test Date
Report Date
Location
Test No.

الاسم المختبر و الترخيص المعمية :
(Shabou Express Trade - Sector 2) - Cairo to Sohag
250710023
250710023
(Station (B41+548))
(57)

Noncompetitive Static Plate Load Tests of Soils Q19.18134



Loading (T)	0	1	2	3	4	5	6
Stress (kg)	0	366	1172.8	1796.3	2392.8	2946.1	3420.6
Stress (N/mm ²)	0.00	0.83	1.20	1.56	2.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.41	0.61	0.97	1.30	1.36

D (mm) = 300	Settlement = 0.28	Stress = 693	Settlement = 0.28
Settlement = 0.28	Stress = 693	Settlement = 0.28	Stress = 693

Loading (T)	0	1	2	3	4	5
Stress (kg)	0	268.295	1172.8	1796.3	2392.8	2946.1
Stress (N/mm ²)	0.00	0.63	1.56	2.33	2.33	4.17
Settlement (mm)	1.12	1.25	1.36	1.36	1.64	1.78

D (mm) = 300	Settlement = 1.25	Stress = 1.97	Settlement = 1.25
Settlement = 1.25	Stress = 1.97	Settlement = 1.25	Stress = 1.97

Unloading (T)	1	2	3	4
Stress (kg)	3523	3786	654	71
Stress (N/mm ²)	6.00	2.30	1.200	0.10
Settlement (mm)	1.30	1.25	1.23	1.12

Settlement = 1.25

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Company Name	: شركة الأمن للمقاولات والتوريدات العمومية
Project	: Metro Express Train - Seine (2 - 2nd milestone)
Test Date	: 26/07/2023
report date	: 26/07/2023
Location	: Station (441+430)
Test No.	: 02

Nonrepetitive Static Plate Load Tests of Soils

Learning Goals (1)

Load (kg)	Stress (N/mm ²)	Strain (mm/mm)	Modulus of Elasticity (N/mm ²)
0	0.00	0.00	
1	0.05	0.0005	
2	0.10	0.0010	
3	0.15	0.0015	
4	0.20	0.0020	
5	0.25	0.0025	
6	0.30	0.0030	
7	0.35	0.0035	
8	0.40	0.0040	

Unloading Stone (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	N/mm ²		mm		mm	
1	2.50	18.05	0.37	18.31	1.07	1.02
2	1.25	18.05	0.34	18.36	1.02	0.95
3	0.100	18.17	0.87	18.26	0.92	0.90

Learning Objectives (LOs)

Loading	Stress kN/cm ²	Defl 1	Settlement mm	Defl 2	Settlement mm	Average
0	0.03	13.00	1.10	10.90	1.10	1.10
1	1.88	14.75	1.24	12.25	1.27	1.25
2	2.90	15.60	1.40	10.60	1.48	1.43
3	3.33	16.45	1.53	10.40	1.60	1.56
4	4.17	17.30	1.68	10.30	1.72	1.71



Cellular **Energy**

Abstract

[illegible]

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

Keywords: child sexual abuse; disclosure; social support

[illegible]

المسألة الأولى: ما هو دور الدولة في التنمية الاقتصادية؟

[illegible]

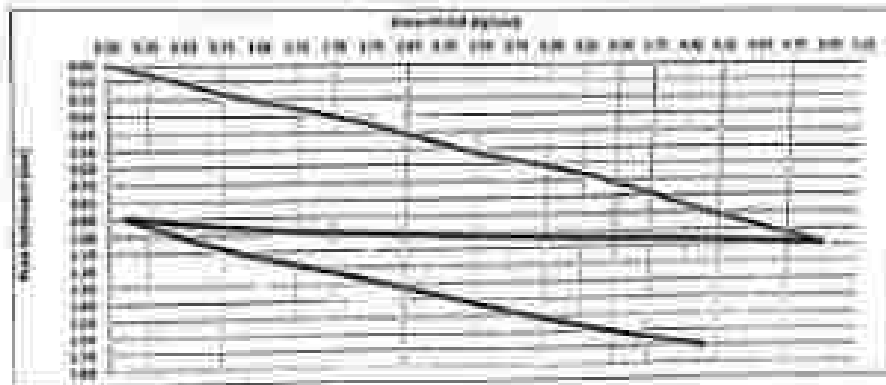
CONCLUSIONS

Received 12/1/2001

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100

Management, Health, Safety, and Waste of Nuclear
Level 1, 18/1/24



Location (%)	0	1	2	3	4	5	6
Step (cm)	0	880	1072.9	1094.1	1118.8	1146.1	1188.6
Strain (Volum %)	0.00	0.88	1.86	2.52	3.20	4.12	6.00
Subsidence (mm)	0.00	0.14	0.14	0.03	0.07	0.82	1.00

Sampling (t)	1	2	3	4
Stage 1 (s)	23.53	17.68	9.63	7.1
Stage 2 (s/1000)	2.00	2.20	1.2702	0.70
Swiftness (m/s)	1.10	1.22	0.555	0.32

Expend = 100	97 percent	0.97	Balance = 0.03	300 = 0.03
Net income = 9.07 percent		0.0907		

Loading (t)	1	2	3	4	5	6
Shovel	0	100.700	111.2	116.3	122.6	128.1
Screen (diagonal)	0.15	0.67	0.66	0.66	0.73	0.77
Bottoming (iron)	0.60	1.10	1.24	1.43	1.58	1.71

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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12 (Jan) = 200	13 (Jan) = 100	14 (Jan) = 100	15 (Jan) = 100	16 (Jan) = 100	17 (Jan) = 100
18 (Jan) = 100	19 (Jan) = 100	20 (Jan) = 100	21 (Jan) = 100	22 (Jan) = 100	23 (Jan) = 100

Fig. 4. Influence of temperature during the heating stage

Fig. 2 Response of *Phragmites* during the flooding stage

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

By a The difference between \hat{E}_1 and \hat{E}_2 is the average number of times that \hat{E}_1

It is different to approach corresponding to C.2 and C.3 from the authors' leading team.



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Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report contain the following -
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test .
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Proof

- **Type of soil** : Original Earth
- **Job requirement** : $EV2 > 30 \text{ MPa}$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	12/08/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{s1}/E_{s2} Ratio
	From	To			E_{s1} (Mpa)	E_{s2} (Mpa)	
1	641+440	641+540	641+500	-4.5	112.3	102.2	1.10

Signature / 

Company Name : شركة الاهل للتحريات و التوثيق المعمارية
Project : Electric Express Train - Sector (3) - Delta to Aswan
Test Date : 12/08/2022
report date : 13/08/2022
Location : Station (641+500)
Test No. : 21

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.93	15.88	0.11	15.30	0.80	0.45
2	1.60	15.95	0.35	15.00	1.00	0.68
3	2.50	15.43	0.57	15.33	1.18	0.88
4	3.33	15.28	0.72	15.77	1.33	0.98
5	4.17	15.06	0.94	15.35	1.51	1.23
6	5.00	15.04	1.06	15.37	1.73	1.40

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	15.07	0.93	15.16	1.64	1.29
2	1.25	15.20	0.80	15.48	1.51	1.18
3	0.100	15.33	0.47	15.79	1.22	0.94

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.93	15.42	0.58	15.35	1.44	1.01
1	1.60	15.23	0.77	15.36	1.66	1.22
2	2.50	15.11	0.88	15.38	1.81	1.35
3	3.33	14.99	1.05	15.21	1.87	1.45
4	4.17	14.88	1.11	17.56	2.08	1.59



Scanned with CamScanner

Company : شركة المعامل للمشاريع والتوريدات الهندسية

Project : Electric Express Train - Section (E) - Ques to Arment
Subject : 1. Determine the deformation and strength characteristics of soil by the plate loading test according specifications DD 18134:2012-04 and project requirements
Test Location : Station (641+040 to 641+040)
Test Date : 17/08/2022
Report Date : 19/08/2022
Type of soil : Original Earth at level (-3.00)
Report No. : 1.1

Dear Gentleman,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic stickers to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction force to the loading plates
6. Dial indicator measuring device with scale capacity 100 Bar (25mm)
7. Reaction loading system by water compactor with weight approximately 15 ton
8. Calibration certificates are attached.

Test Procedure

1. Clear the ground in test area to the required level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 dial gauges
3. After installing the test apply pressure about 90 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate the limit values are 5.0 kg/cm²
6. The test shall be applied in six stages, in approximately equal increments, until the required maximum normal stress is reached
7. Each change in load (from stage to stage) shall be continued within one minute
8. The test shall be released in 3 stages, to 50 %, 25 %, and approximately 2 % of the maximum load
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the maximum stage of the first cycle and that the full test is not repeated
10. At each stage the test shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min
11. Remove the loads



Report

1. Evaluation and representation of results
2. Load Settlement curve.
3. The test report content the following:-
 - location of test site - Dimension of loading plate.
 - Measuring device used - Type of soil.
 - Type of Bedding material below the plate -Weathering condition.
 - Time and date of measurements - Unusual observation made during test.
 - Dial gauge reading and corresponding normal stress - Loading-settlement curve.
 - Description of the soil condition below the plate after testing.

Report

- Type of soil : Original Earth
- Job requirement : $E_v > 40 \text{ MPa}$

Date	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	17/08/2023
- Unusual observation made during test.	NO
- Description of the soil conditions below the plate after testing	No deterioration

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	Exp. Ev. Ratio
	From	To			E_v (Mpa)	E_v (Mpa)	
1	641+540	641+040	641+500	-3.5	102.3	105.6	1.14
2	641+540	641+940	641+600	-3.0	90.6	106.0	1.22
3	641+540	641+940	641+800	-2.3	91.0	137.4	1.51



Company Name : شركة المعامل الهندسية والدراسات الهندسية
Project : El-Dokki Express Tolls - Section (B) - Giza & around
Test Date : 12/08/2023
Report Date : 18/08/2023
Location : Station (B414-000)
Test No. : 01

Nonresilient Static Plate Load Tests of Soil DIN 18134

Loading Stage (1)

Loading	Stress kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.83	15.01	0.13	15.02	0.12	0.12
2	1.66	15.02	0.24	15.03	0.23	0.23
3	2.50	15.03	0.33	15.04	0.33	0.33
4	3.33	15.23	0.75	15.24	0.74	0.74
5	4.17	15.23	0.97	15.28	0.92	0.95
6	5.00	15.25	1.11	15.33	1.07	1.09

Unloading Stage (1)

Loading	Stress kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	15.15	1.05	15.08	1.09	1.07
2	1.66	15.15	0.88	15.22	0.78	0.83
3	0.83	15.23	0.41	15.03	0.20	0.30

Loading Stage (2)

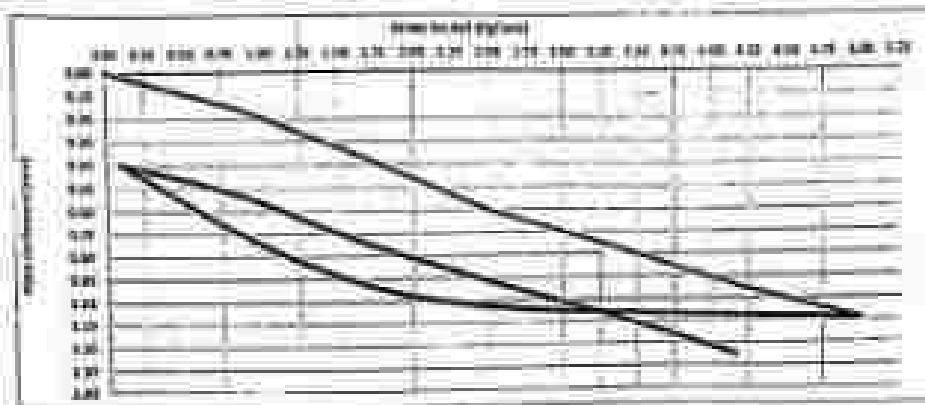
Loading	Stress kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.07	0.00	15.08	0.01	0.00
1	1.00	15.09	0.13	15.08	0.12	0.12
2	2.00	15.08	0.34	15.11	0.23	0.28
3	3.00	15.01	1.05	15.04	1.00	1.00
4	4.17	15.15	1.37	15.06	1.14	1.25



Company Name
Project
Test Date
Report No.
Location
Test No.

المبنى: قاعات المحاضرات
Elevation of Upper Floor - Section (B) - Close to Access
171001001
161002002
Station (B41+000)
01

Normalised Static Plate Load Tests of Soils
(EN 19124)



Loading (1)	0	1	2	3	4	5	6
Stage/Fail	0	0.05	0.10	0.15	0.20	0.25	0.30
Stress (kN/m²)	0.00	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.05	0.10	0.15	0.20	0.25	0.30

Static Loading (1)	1	2	3	4
Stage/Fail	0.05	0.10	0.15	0.20
Stress (kN/m²)	0.05	0.10	0.15	0.20
Settlement (mm)	0.05	0.10	0.15	0.20

Q _{avg} (kPa) = 0.00	Q ₁ (kPa) = 0.00	Q ₂ (kPa) = 0.00	Q ₃ (kPa) = 0.00	Q ₄ (kPa) = 0.00
Q ₅ (kPa) = 0.00	Q ₆ (kPa) = 0.00	Q ₇ (kPa) = 0.00	Q ₈ (kPa) = 0.00	Q ₉ (kPa) = 0.00

Q_{avg} (kPa) = 0.00

Loading (2)	0	1	2	3	4	5	6
Stage/Fail	0	0.05	0.10	0.15	0.20	0.25	0.30
Stress (kN/m²)	0.00	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.05	0.10	0.15	0.20	0.25	0.30

Q _{avg} (kPa) = 0.00	Q ₁ (kPa) = 0.00	Q ₂ (kPa) = 0.00	Q ₃ (kPa) = 0.00	Q ₄ (kPa) = 0.00
Q ₅ (kPa) = 0.00	Q ₆ (kPa) = 0.00	Q ₇ (kPa) = 0.00	Q ₈ (kPa) = 0.00	Q ₉ (kPa) = 0.00

- Q₁ = Modulus of subgrade reaction during the loading stage
Q₂ = Modulus of subgrade reaction during the unloading stage
Q₃ = Modulus of subgrade reaction
Q₄ = The difference between Q₁ and Q₂ from the maximum loading point (kPa)
Q₅ = Difference in settlements (mm) according to Q₁ and Q₂ from the maximum loading point



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Company Name : شركة المعمل للتقانات والدراسات الهندسية
Project : (Bioss) Express Train - Section (2) - Giza to Assiut
Test Date : 17/08/2023
report date : 19/08/2023
Location : Station (841+000)
Test No. : 02

Nonrepulsive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	2920	0.00	2920	0.00	0.00
1	0.80	2921	0.10	2927	0.13	0.12
2	1.60	2924	0.20	2930	0.25	0.23
3	2.40	2941	0.20	2947	0.33	0.28
4	3.20	2947	0.28	2957	0.38	0.33
5	4.00	2950	0.30	2965	0.47	0.39
6	4.80	2967	0.43	2980	0.58	0.51

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	1.60	2936	0.34	2946	0.30	0.32
2	1.20	2934	0.32	2943	0.28	0.30
3	0.80	2937	0.43	2950	0.28	0.41

Loading Stage (2)

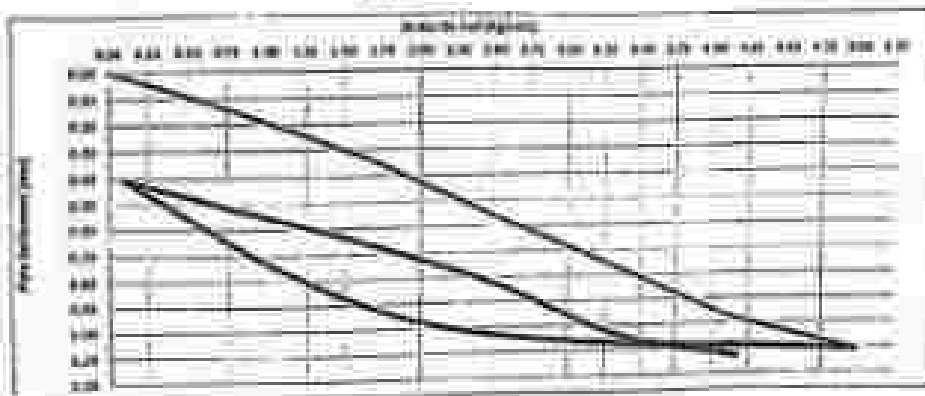
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	2936	0.01	2936	0.00	0.01
1	1.60	2937	0.77	2944	0.50	0.65
2	2.50	2938	0.82	2947	0.73	0.83
3	3.20	2940	1.00	2950	0.90	1.04
4	4.00	2940	1.17	2950	1.00	1.10



Company Name
Project
Test Date
Report Date
Location
Test No.

المبنى المحاسنات والوجه القبلى
El Mansoury Plaza - Sector 02 - Giza 12
1/10/2022
1/10/2022
Sector 02 (Giza)
02

Immediate Static Plate Load Tests at Giza 12/22



Load (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.02	0.04	0.06	0.08	0.10	0.12

Settlement (mm)	1	2	3	4
Settlement (mm)	0.05	0.10	0.15	0.20
Settlement (mm)	0.02	0.04	0.06	0.08

Load (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.02	0.04	0.06	0.08	0.10	0.12

Settlement (mm)

Load (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.02	0.04	0.06	0.08	0.10	0.12

Load (kN)	0	1	2	3	4	5	6
Settlement (mm)	0	0.05	0.10	0.15	0.20	0.25	0.30
Settlement (mm)	0.00	0.02	0.04	0.06	0.08	0.10	0.12

Settlement (mm) at different loads during the loading stage
Settlement (mm) at different loads during the unloading stage
Settlement (mm) at different loads during the reloading stage

Settlement (mm) at different loads during the loading stage
Settlement (mm) at different loads during the unloading stage
Settlement (mm) at different loads during the reloading stage



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Company Name : شركة الاهلي للتقنيات والبيانات الحاسوبية
Project : Giza Express Train - Station (2) - Giza (2) Station
Test Date : 17/08/2023
Report Date : 18/08/2023
Location : Station (041+000)
Test No. : 43

Nonresistive Static Plate Load Tests of Soils DIN.18124

Loading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.00	25.20	0.00	25.20	0.00	0.00
1	0.25	25.20	0.14	25.22	0.18	0.16
2	0.50	25.15	0.28	25.21	0.30	0.29
3	0.75	25.10	0.43	25.22	0.47	0.44
4	1.00	25.10	0.58	25.24	0.71	0.71
5	1.25	25.10	0.73	25.25	0.87	0.80
6	1.50	25.10	1.00	25.28	1.12	1.11

Unloading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
1	1.50	25.10	1.00	25.25	1.05	1.04
2	1.25	25.14	0.82	25.20	0.87	0.84
3	1.00	25.14	0.58	25.17	0.60	0.58

Loading Stage (2)

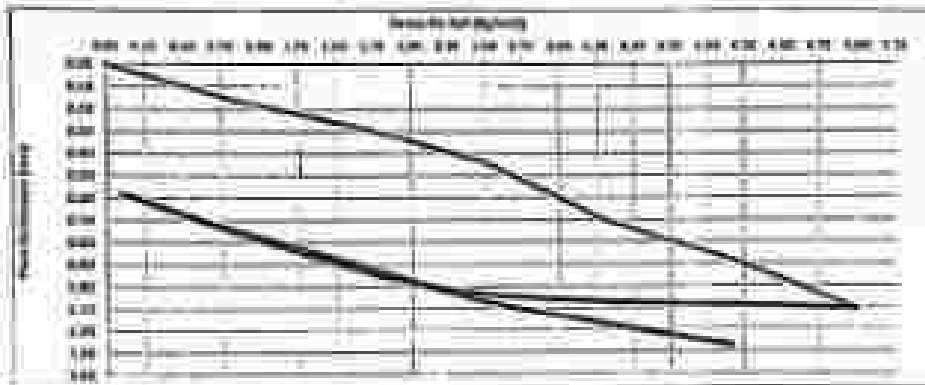
Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.00	25.20	0.71	25.21	0.76	0.74
1	1.00	25.11	0.88	25.18	1.32	0.91
2	2.00	25.05	1.08	25.21	1.38	1.23
3	3.00	25.00	1.18	25.20	1.18	1.18
4	4.17	25.01	1.25	25.20	1.30	1.28



Company Name
Project
Test Date
Report Date
Location
Test No.

البحر المارون والبركات البحرية
Marine Exports (Fido - Sector 22) - Canal at Ismailia
15/08/2023
16/08/2023
Ismailia (S.M.I.S.I.)
05

Nonresonant Static Plate Load Tests of Soils CEN 19934



Loading (t)	0	1	2	3	4	5	6
Force (kN)	0	980	1960	2940	3920	4900	5880
Settlement (mm)	0.00	0.30	0.60	0.80	0.90	1.00	1.10

Unloading (t)	1	2	3	4
Force (kN)	3920	1960	980	0
Settlement (mm)	0.80	0.60	0.40	0.30

Q (kN/m²) = 200	Q ₁ (kN/m²) = 1.0	Q ₂ (kN/m²) = 1.0	Q ₃ (kN/m²) = 1.0
Q ₁ (kN/m²) = 1.0	Q ₂ (kN/m²) = 1.0	Q ₃ (kN/m²) = 1.0	Q ₄ (kN/m²) = 1.0

Q₁ (kN/m²) = 1.0

Loading (t)	0	1	2	3	4	5
Force (kN)	0	980	1960	2940	3920	4900
Settlement (mm)	0.00	0.30	0.60	0.80	0.90	1.00

Q (kN/m²) = 200	Q ₁ (kN/m²) = 1.0	Q ₂ (kN/m²) = 1.0	Q ₃ (kN/m²) = 1.0
Q ₁ (kN/m²) = 1.0	Q ₂ (kN/m²) = 1.0	Q ₃ (kN/m²) = 1.0	Q ₄ (kN/m²) = 1.0

Q₁ = Modulus of subgrade reaction during the loading stage.
Q₂ = Modulus of subgrade reaction during the unloading stage.
Q = Plate diameter (mm).
Q₁ = The difference between Q₁ and Q₂ from the uppermost loading (or unloading) stage.
Q₂ = Difference in settlements corresponding to Q₁ and Q₂ from the middle loading (or unloading) stage.



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Testing date : 18/05/2023
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Sohag to Qena
Station : from 641+240 to 641+300
Level : -5.0 M
S. Description : Middle Embankment
Code : 05

• Sieve Analysis:

Sieve size (IN)	Passing %
2	100
1.5	100
1	98.8
3/4	96.2
3/8	92.2
3/8	88.8
4	82.4
10	74.4
40	38.5
200	10.7

Test	Results	
Soil Classification	A-1-b	
Modified Proctor	Max Dry Density	2.06
	OMC	7.0 %
L.L	0	
P.I	0	
CBR	21.2 %	

Notes:

Lab (CEL)

Lab. Engineer

Signature

Consultant (Spectrum)

Engineer

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Dear Gentleman,

Attached here with the delivered on 18 / 5 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature: 
مكتب معامل الاستشارات الهندسية
شركة الذهبى
القاهرة - مصر

Company Name : شركة الزهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	98.8
19	¾	96.2
12.50	½	92.2
9.50	3/8	88.8
4.75	4	82.4
2.00	10	74.4
0.425	40	38.5

CEL
Signature: 
مكتب معامل الاستشارات الهندسية

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مكتب معامل الاستشارات الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Materials finer than 75 μm (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μm (No.200)	10.7

Signature



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Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة النهي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 

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20111, Cairo
Tel: 011 204000000 | 011 204000000



ST. Mary El-Helwan
20111, Cairo
Tel: 011 204000000 | 011 204000000

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 95

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	74.4	Max 50 %	-----	-----
0.425 mm (No. 40)	38.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (Comply / Not Comply) with specifications limits

Signature


مهندس محمد المصطفى المهرجاني
مدير المختبر

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Zakaria City
Nasr City, Cairo 11564



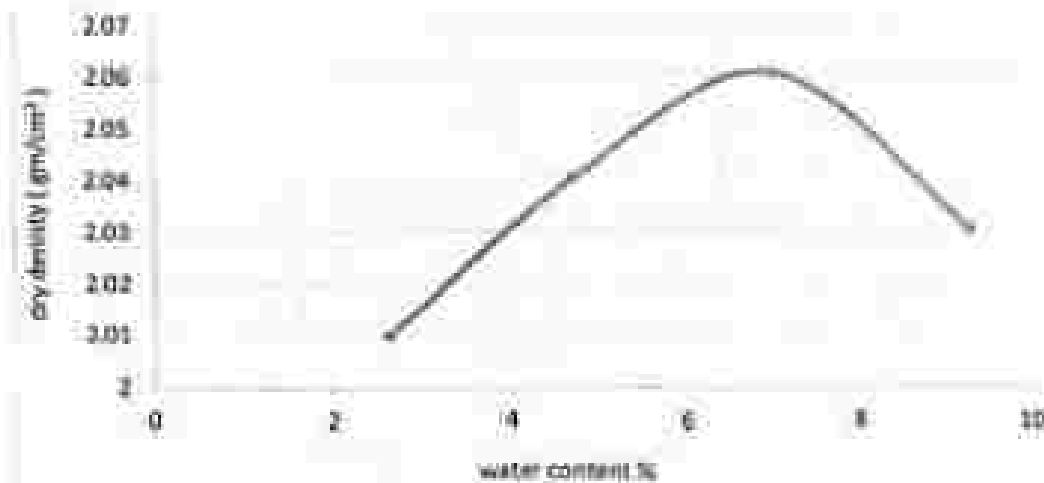
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Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.06
- Optimum moisture content % : 7.0 %

Signature



ج.ع. محمد ع. محمد
Zouheir Elmaghrabi
S.A.M. 2023/05/23/005

IAS
ACCREDITED

Company Name : شركة الأدهبي
Project : Electric Express Train - HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.22
1.27	0.050	0.61
1.91	0.075	1.01
2.54	0.100	1.46
3.18	0.125	1.74
3.81	0.150	1.85
4.45	0.175	1.76
5.08	0.200	1.58
6.35	0.250	1.19

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 Inch (2.54 mm) penetration	St. Value	Sample results	21.2 %
	6.90	1.46	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.06 \text{ (gm /cm}^3\text{)}$
At = 7.0 % optimum water content.
- 3- Surcharge load 1000 kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: _____

LEMAN A. ABDELRAHMAN
General Civil
Tel/Fax 2274022 - 2274030

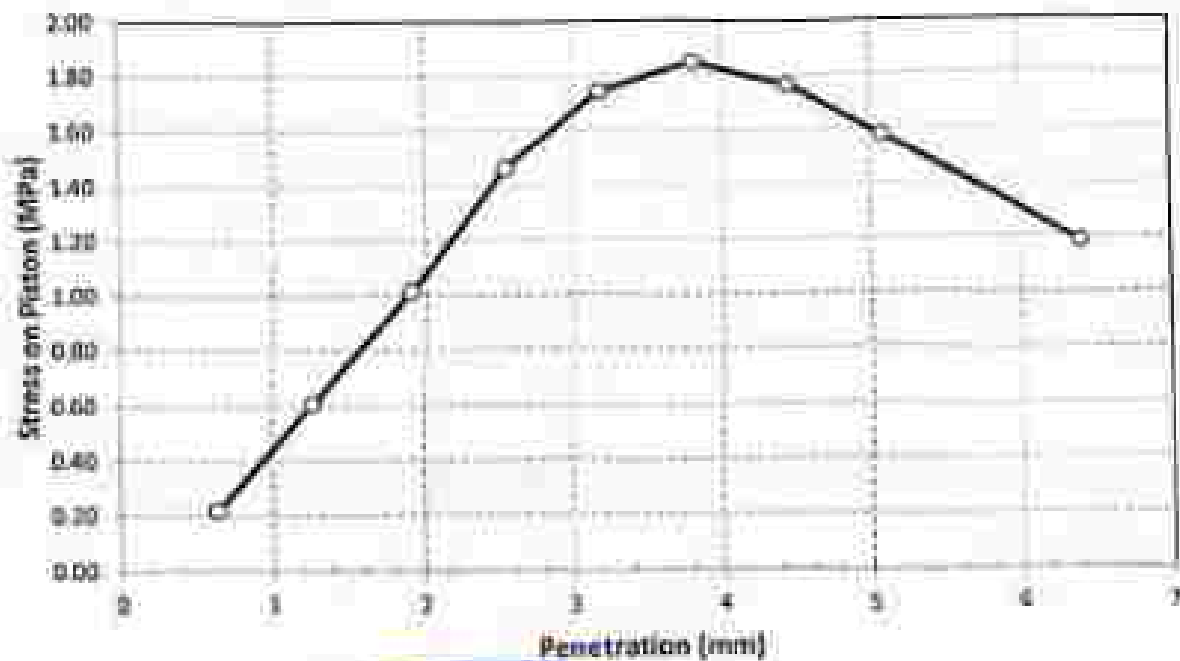


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Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9126620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/5/2023
Reporting Date : 23/5/2023
Reporting No. : 05

Load Penetration Curve of CBR Test ASTM D-1883



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مكتب محامى الاستشارات الهندسية

SEMIAN E. Foad Elwan
Engineer, CMB
Tel/Fax: 2780201 - 2780201

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مكتب محامى الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qaux To Arman
Testing Date : 25/7/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.5 M
Report No. : 11

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+240	1557	2.10	5.8	1.99	95.4%	Comply
2	641+280	1767	2.10	5.8	1.98	95.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 2.0 %

Signature /


Mohamed Elmaghrabi
212, 201, 425
2012/07/25

111 MAH EL ARAB STREET
Fayoum, Egypt
Toll free 0800 200 000



Mohamed Elmaghrabi
Chief Engineer
2012/07/25

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Dear Gentleman ,

Attached here with the delivered on 20 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature:

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	97.3
19	3/4	95.4
12.50	1/2	91.6
9.50	3/8	87.4
4.75	4	81.5
2.00	10	71.3
0.425	40	36.8

Signature

Signature of the Engineer
Dr. Mohamed El-Dokki
Head of the Laboratory
CEL
20/7/2023



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Materials finer than 75 μm (no. 200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μm (No.200)	11.4

Signature: *[Handwritten Signature]*

[illegible]

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 


Dr. Mohamed El-Sayed
24/7/2023 14:00:00



Dr. Mohamed El-Sayed
24/7/2023 14:00:00

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	71.3	Max 50 %	—	—
0.425 mm (No. 40)	36.8	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /

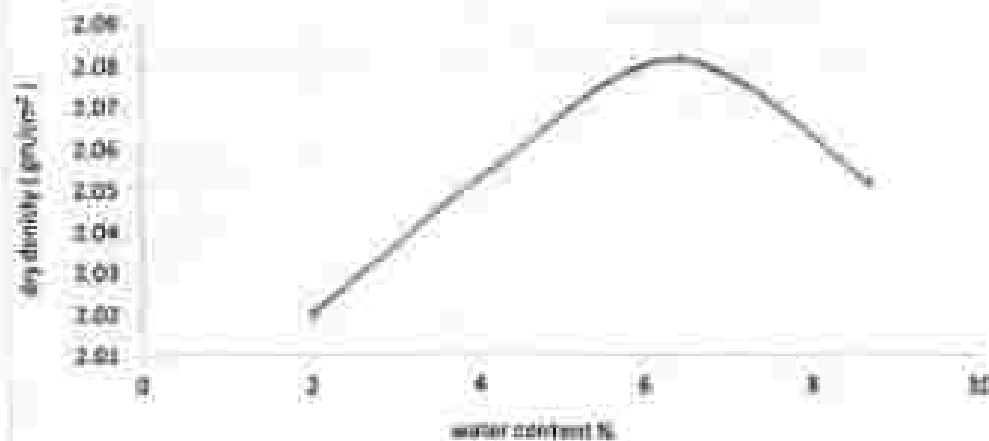
10 MAR 2024
Zohair G. G.
T. 011 3333 3333



10 MAR 2024
Zohair G. G.
T. 011 3333 3333

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.08
- Optimum moisture content % : 6.4 %

Signature

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.07
2.54	0.100	1.52
3.18	0.125	1.78
3.81	0.150	1.88
4.45	0.175	1.77
5.08	0.200	1.56
6.35	0.250	1.12

CBR Result	Stress (Mpa)		CBR 100 %
At 6.1 inch (2.54 mm) penetration	St. Value	Sample results	22 %
	6.90	1.52	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.08 \text{ (gm / cm}^3\text{)}$
At ≈ 0.4 optimum water content.
- 3- Surcharge load 4.5 kg
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature / 

11/11/2023
Fouad, Lab
N/A



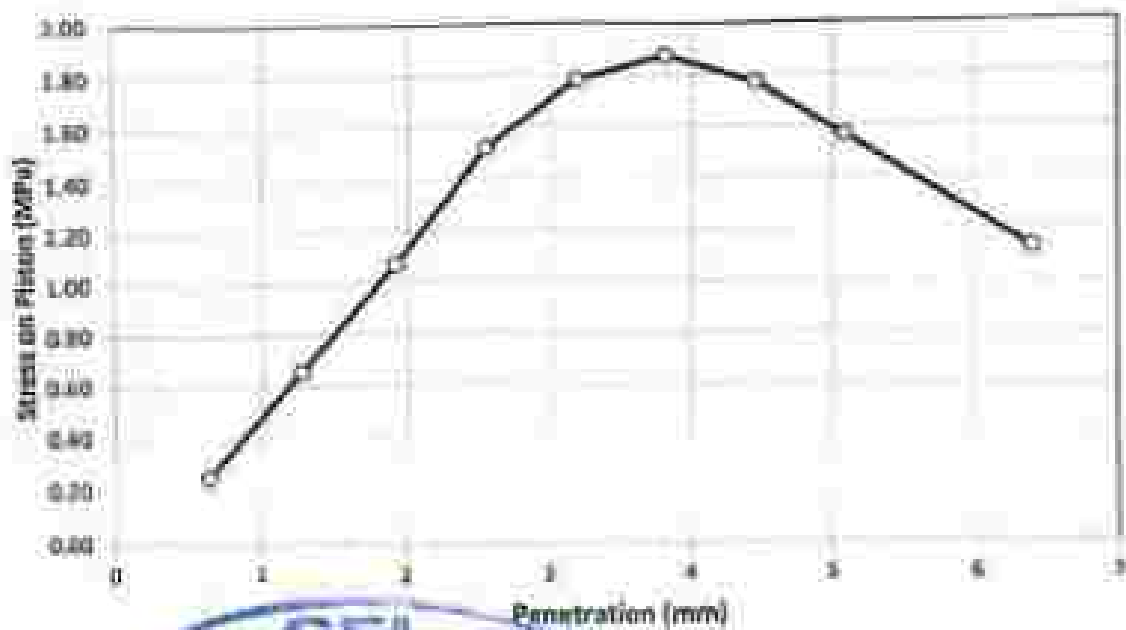
11/11/2023
Fouad, Lab
N/A

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 20/7/2023
Reporting Date : 24/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



CEL
مكتب محاسن الاستشارات الهندسية
Signature: 

11-11-2023
10:00 AM
11-11-2023

IAS
ACCREDITED



Consulting Engineering Bureau & Laboratories
مكتب معمار الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 01/08/2023
Soil type : Middle Embankment
Location : St From 641+320 To 641+360
Level : >5 M
Report No. : 21

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+340	1426	2.24	5.8	2.12	99.6%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

Signature / _____

Tested By: _____
Checked By: _____
Supervised By: _____



Tested By: _____
Checked By: _____
Supervised By: _____

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9126620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 12/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentlemen,

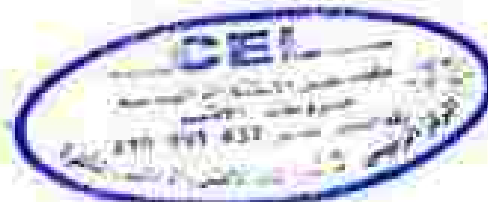
Attached here with the delivered on 22 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature / محمد بن عبد الله



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	3/4	90.0
12.50	1/2	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature:  

3P-MQA-ET-001 Rev.01
Zohair Gohar
1443 H - 329722 - 2266081



مركز
مختبر
مختبر



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الزهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature / 

30 Mulek E. Piro Ghar
Zarbin, Gen.
Safte 2022 2023



2022 2023
2022 2023

Company Name : شركة الذبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature

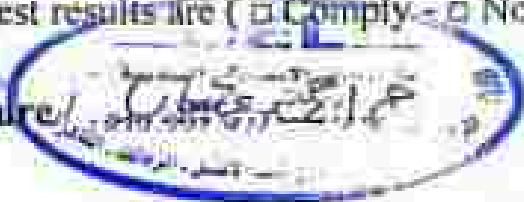
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	72.91	Max 50 %	-----	-----
0.425 mm (No. 40).	39.87	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit:		-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

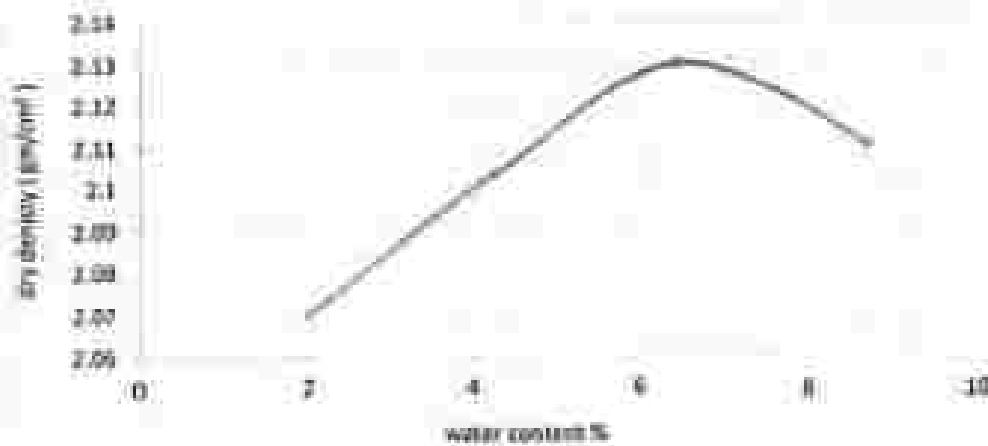
The test results are (☒ Comply ☐ Not Comply) with specifications limits.

Signature



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

[Handwritten Signature]
2023/07/26

18 Mark E. H. H. H.
T. H. H. H. H.
18/07/2023

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LABORATORY

18/07/2023
18/07/2023
18/07/2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.99	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (gm/cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.30 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 38.

Signature : 

ST/Eng E. Elshorbagy
Lab. Eng.
Date: 26/7/2023

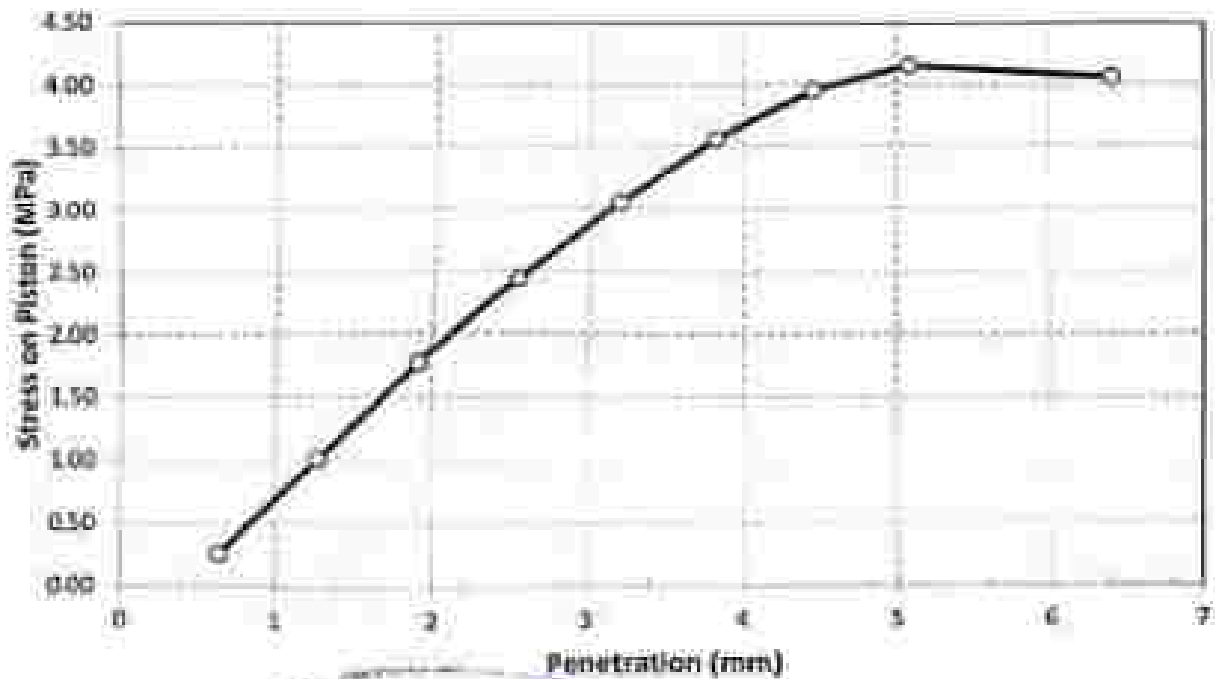


ST/Eng E. Elshorbagy
Lab. Eng.
Date: 26/7/2023

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test

ASTM D-1883



Signature

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CEL

Consulting Engineering Bureau & Laboratories
مكتب مفاعيل الاستشارات الهندسية

Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 02/08/2023
Soil type : Middle Embankment
Location : St From 641+360/641+420
Level : -4.5M
Report No. : 24

Compaction test by using Sand – Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+390	1185	2.16	5.3	2.05	98.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.08 gm/cm³
- At optimum moisture content = 6.4 %

Signature


Hani Al-Ahmad
2023/08/02
مدير المختبر
مكتب مفاعيل الاستشارات الهندسية

17/15/2023
2023/08/02
17/15/2023

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17/15/2023
2023/08/02
17/15/2023

Reporting No. : 05-2

Scanned with CamScanner

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qons To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	100
25	1	97.3
19	¾	95.4
12.50	½	91.6
9.50	3/8	87.4
4.75	4	81.5
2.00	10	71.3
0.425	40	36.8

CEL
مكتب معماري الاستشارات الهندسية
شروط العمل : 2019/05/14
2019/05/14
Signature: 

REMIKE PALLON
Zurich, Geo
TAKES WORKSHEET

IAS
ACCREDITED

Date: 26/7/2023
Page: 1 of 1

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.4

Signature  **CEL**
مهندس محمد عبد الله محمد
م.ع. 0011 222 222 222
م.ع. 0011 222 222 222

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature:  

8800 Main E. Apt. 100
Denver, CO
Tel: 303-733-7171



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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No. 10)	71.3	Max 50 %	—	—
0.425 mm (No. 40)	36.8	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

CEL
مكتب معامل الاستشارات الهندسية
Signature: 
م. ك. الذهبى

18 MARIUT MILAD
Zayed City
T4456 274977 - 274930



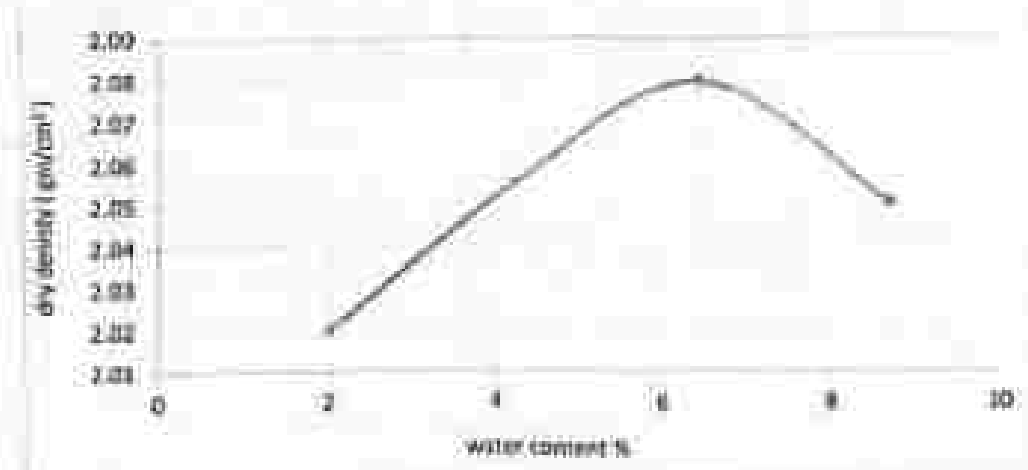
م. ك. الذهبى
م. ك. الذهبى
م. ك. الذهبى

CEL

Consulting Engineering Bureau & Laboratories
مكتب مهندسي الاستشارات والاختبارات

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.08
- Optimum moisture content % : 6.4 %

Signature :

CEL
مكتب مهندسي الاستشارات والاختبارات
رقم الترخيص: ٢٥٩٩٠٩١
٢٠٢٣

Dr. Mostafa El-Dabbas
Zakaria Darbi
Tel: 011-2780021 / 2780020

IAS
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Testing Laboratory

م. مصطفى الدباس
زكريا دربي
الهاتف: ٢٧٨٠٠٢١ / ٢٧٨٠٠٢٠

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	0.66
1.91	0.075	1.07
2.54	0.100	1.52
3.18	0.125	1.78
3.81	0.150	1.88
4.45	0.175	1.77
5.08	0.200	1.56
6.35	0.250	1.12

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	22 %
	6.30	1.52	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was corrected to dry density of $\approx 2.08 \text{ (gm/cm}^3\text{)}$
At $\approx 6.4 \text{ (mm)}$ water content.
Surcharge load 4.50 Kg.

4- CBR > 1 for middle and lower embankments according project spec page No 3E.

Signature: 

J. EL RAH EL ARABY
Engr. CEL
Tel: 011 266577 - 266578



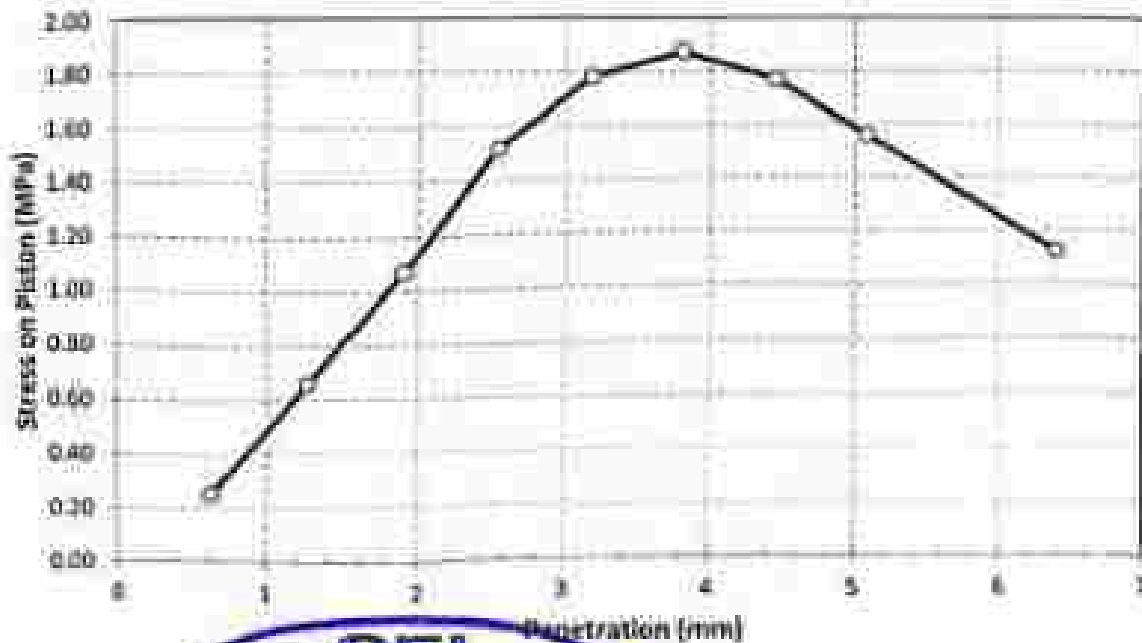
تم التحقق من
البيانات
بواسطة
مكتب
المعايير
والقياسات
مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
CEL
210 07 4320

16 H266 E Armanat
Zoubeir Omer
Tel: 011 2080111 - 011 2080112

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www.ias-egypt.com

26/7/2023
011 2080111 - 011 2080112

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 05/08/2023
Soil type : Middle Embankment
Location : St From 641+300/641+360
Level : -4.5 M
Report No. : 28

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+250	1570	2.14	5.8	2.02	95.0%	Comply

• Degree of compaction based on proctor test dated At :

• Max. dry density = 2.13 gm/cm³

• At optimum moisture content = 6.4 %

Signature : 
مهندس محمد عبد الحليم
28/08/2023

11/08/2023

05/08/2023

05/08/2023

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05/08/2023

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.9 M)
Delivery Date : 21/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman,

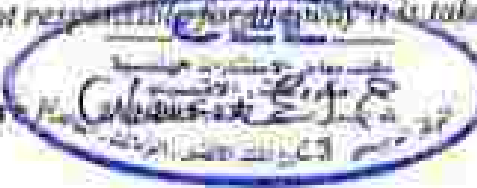
Attached here with the delivered on 22/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1537.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature


ممثل المختبر
CEL
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 053

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	¾	90.0
12.50	½	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature: 
O. Alkassab

30 Mada E 2001 (Said)
Cairo, Egypt
Tel: 011 2380 22 475430



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature / 


Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.6862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-3-4)
Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-3-4)
2.00 mm (No.10).	71.91	Max 50 %	—	—
0.425 mm (No. 40).	39.87	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature



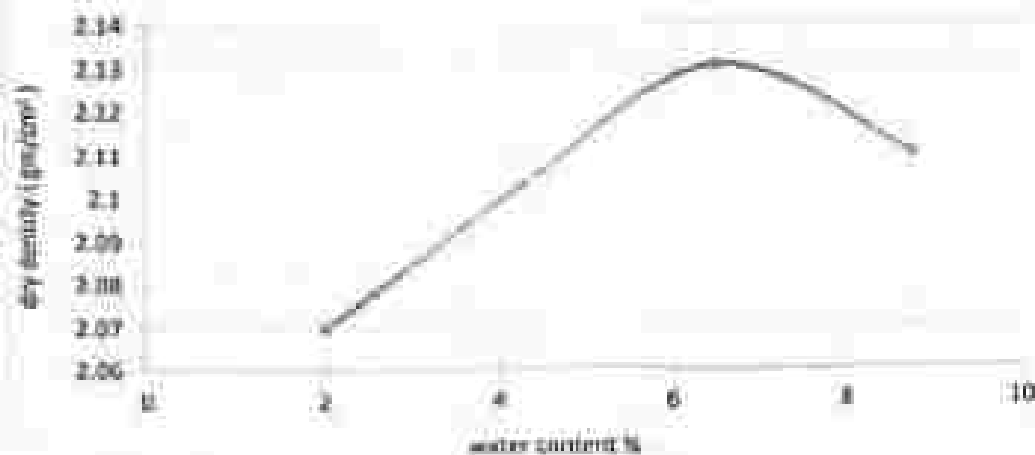
ECMARE ALKOTHE
Zaiden, Cairo
TEL: 011 2254221 - 25411021



مكتب محامل الاستشارات الهندسية
القاهرة - مصر
011 2254221 - 25411021

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

11 Mark E. 2021/04/04
2021/04/04
11 Mark E. 2021/04/04



11 Mark E. 2021/04/04
2021/04/04
11 Mark E. 2021/04/04

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.90	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.13 (gm /cm³)
At 4% optimum water content.
- 3- Surcharge load 450 K.g.

- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: 

Dr. Mary E. Ali, BSc
Zainab, City
SAUDI ARABIA - JEDDAH



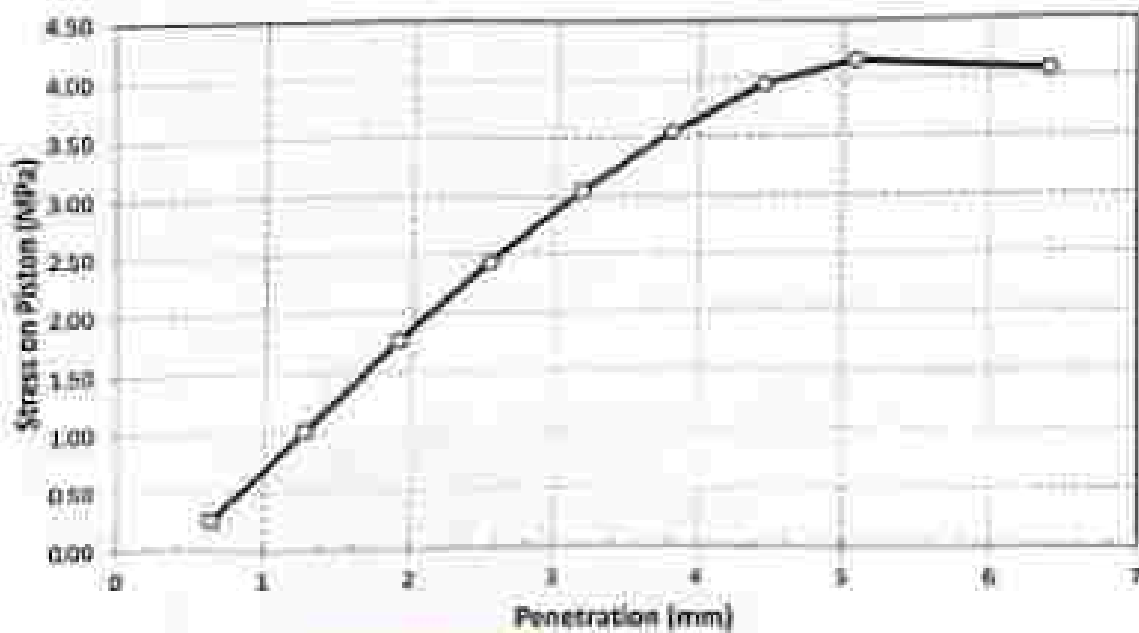
م. ماري ع. علي، بكالوريوس
زينة، المدينة
السعودية - جدة

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
CEL
219 001 427

Lab. No. 001/2023
Date: 26/7/2023
Page: 001/001

IAS
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Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 05/08/2023
Soil type : Middle Embankment
Location : St From 641+220 To 641+300
Level : -4.0 M
Report No. : 26

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+250	1574	2.19	6.4	2.06	96.7%	Comply
2	641+280	1581	2.13	5.2	2.03	95.2%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.13 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



18/08/2023
Zohair, Can
Tahar, 20/08/2023



18/08/2023
Zohair, Can
Tahar, 20/08/2023



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman ,

Attached here with the delivered on 22 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Procter Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



SENIOR ENGINEER
Zeynab Ghanem
Tel: 011 221 437 (Ext. 2020)



م.م. زينة غنيم
مهندس استشاري
الهاتف: 011 221 437 (امتداد 2020)

Company Name : شركة الذئبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	3/4	90.0
12.50	1/2	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature

CEL
مكتب محامل الاستشارات الهندسية
Signature: [Handwritten Signature]
[Handwritten Text]

1 El Mouna El Mouna
Zarabie Cam
S.A.F.A. 2023/07/26



المقر الرئيسي
الشارع الرئيسي
الشارع الرئيسي



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3


Signature: 

CEL Data Engineering
Zakaria, Qasbi
NABP No. 27922 - 2018/03/01



CEL Data Engineering
Zakaria, Qasbi
NABP No. 27922 - 2018/03/01



Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

IAS
American Institute of Architects

[illegible]

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-h			
2.00 mm (No.10):	72.91	Max 50 %	————	————
0.425 mm (No. 40):	39.87	Max 30 %	Max 50 %	————
0.075 mm (No. 200):	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature

Mr. Mervat El-Dokki
Bureau Chief
Moh. El-Dokki, Egypt

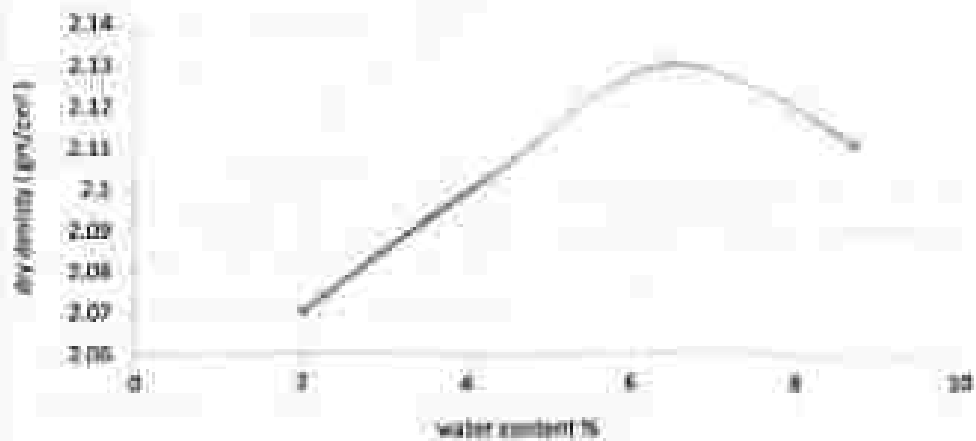


CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862830
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

Dr. Hani F. Al-Jarrah
Dr. Hani F. Al-Jarrah
Dr. Hani F. Al-Jarrah

IAS
ACCREDITED
BY

إدارة الجودة
بموجب المواصفة
ISO 9001:2015

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.93	2.43	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.13 \text{ (g/cc)}$
At $\approx 5\%$ optimum water content.
- 3- Surber load $\approx 50 \text{ Kg}$.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature

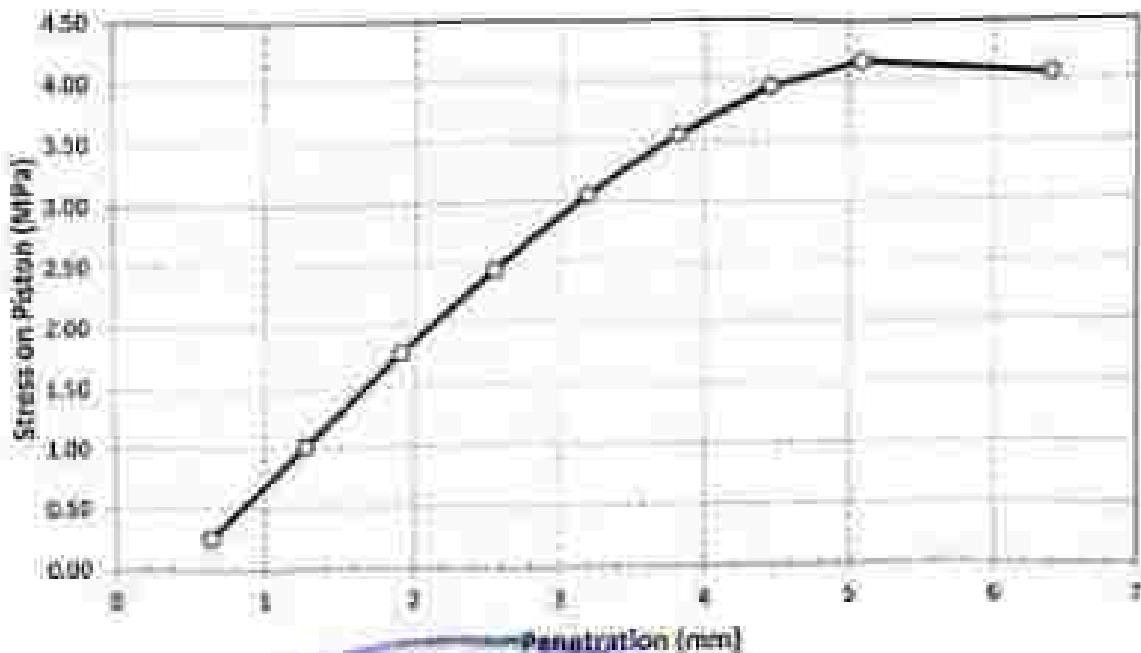
10/11/2023
Zaid Al-Ghannam
TAMM: 27662030 / 27662030



10/11/2023 / 27662030 / 27662030

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
مكتب محاسن الاستشارات الهندسية
م. محمد عبد الله
م. محمد عبد الله
م. محمد عبد الله

CEL

Environmental Compliance
Environmental Compliance Department
Environmental Compliance Unit

Company Name: [Redacted]
Project: [Redacted]
Testing Date: [Redacted]
Testing Time: [Redacted]
Location: [Redacted]
Inspector: [Redacted]
Inspector No.: [Redacted]

**Environmental Compliance Department
Environmental Compliance Unit**

Item	Name	Tested Value	Set Point	Actual Value	Set Point	Pass/Fail	Remarks
1	Set Point	1000	1.00	1.00	1.00	Pass	Sample
2	Set Point	1000	1.00	1.00	1.00	Pass	Sample
3	Set Point	1000	1.00	1.00	1.00	Pass	Sample

Signature of Inspector: [Redacted]

- [Redacted]
- [Redacted]
- [Redacted]



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Dear Gentleman,

Attached here with the delivered on 22/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97.1
25	1	93.1
19	3/4	90.0
12.50	1/2	85.5
9.50	3/8	81.6
4.75	4	77.6
2.00	10	72.9
0.425	40	39.9

Signature 

CE/MAK E-MAIL: mak@cel.com
TEL: 011-23333333
FAX: 011-23333333

IAS
ACCREDITED

CE/MAK E-MAIL: mak@cel.com
TEL: 011-23333333
FAX: 011-23333333



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.3

Signature 

Dr. Mohamed E. Abdelhady
Engineer, Civil
Cell No. 0100000000000000



Dr. Mohamed E. Abdelhady
Engineer, Civil
Cell No. 0100000000000000

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0


Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862630
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 23/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	A-1-b			
2.00 mm (No.10)	72.91	Max 50 %	—	—
0.425 mm (No. 40)	39.87	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are **comply** (Not Comply) with specifications limits

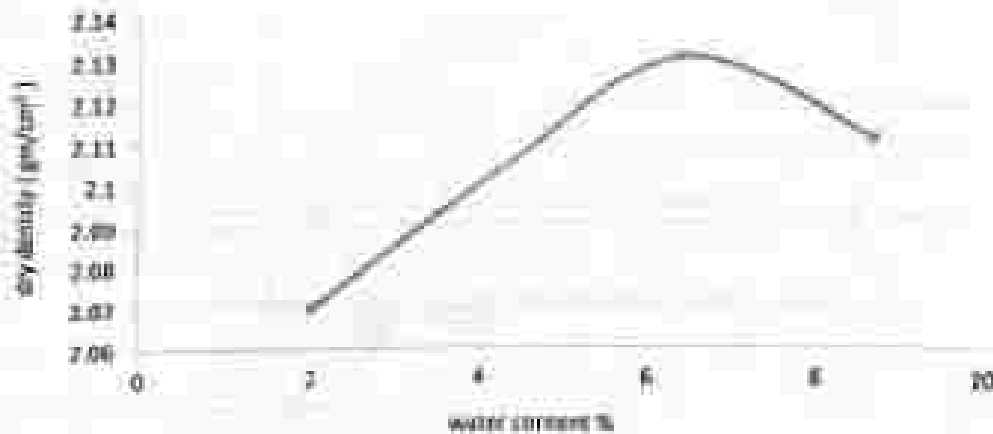
Signature

Dr. Mohamed Elmaghrabi
Engineer
Said Elmaghrabi (776007)



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max. dry density (gm/cm³) : 2.13
- Optimum moisture content % : 6.4 %

Signature

Dr. Maher E. Heliwan
Engineer
SA/AL/00421-17/000



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.25
1.27	0.050	1.01
1.91	0.075	1.78
2.54	0.100	2.43
3.18	0.125	3.05
3.81	0.150	3.55
4.45	0.175	3.96
5.08	0.200	4.16
6.35	0.250	4.06

CBR Result	Stress (Mpa)		CBR 100 %
At 4.4 inch (2.54 mm) penetration	St. Value	Sample results	35.3 %
	6.96		

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.13 \text{ (gm/cc)}$
At = 6.4 % optimum water content.
- 3- Springing **5000 L 50 Kg**
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature: 

J. El-Mahdy E. El-Mahdy
Lab. Manager
Date: 26/7/2023



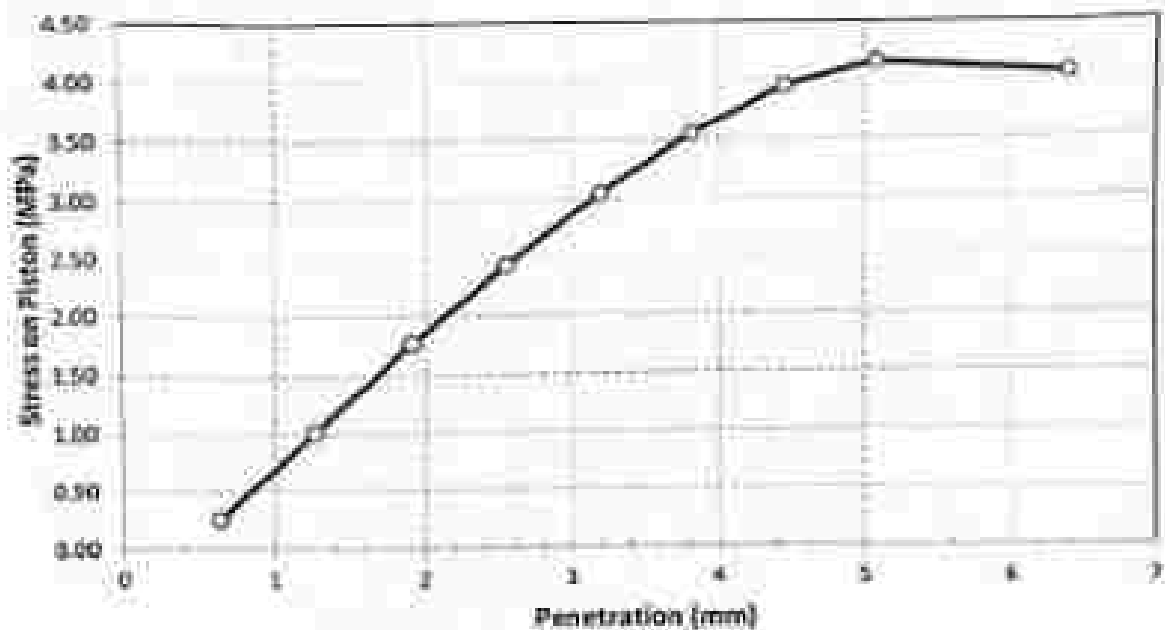
Dr. Mohamed El-Mahdy
Lab. Manager
Date: 26/7/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-3

Load Penetration Curve of CBR Test ASTM D-1883



Signature: 
219.481.424
2023/07/26

ST: 641+100
Project Name:
Soil: Embankment

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2023/07/26
Page 2 of 2

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 12/08/2023
Soil type : Middle Embankment
Location : St From 641+180 To 641+300
Level : - 3.5 M
Report No. : 32

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+200	1352	2.17	5.5	2.06	96.1%	Comply
2	641+250	1468	2.20	5.5	2.09	97.6%	Comply
3	641+280	1369	2.20	5.5	2.09	97.5%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 

CEL
219, 801, 477
SAFIR 20920 - 27650



إلى السيد المهندس
مهندس
مهندس
مهندس

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Youssef Attia
Lab Manager (Lab. No. 3)
Lab. No. 3 (Lab. No. 3)



Lab. No. 3 (Lab. No. 3)
Lab. No. 3 (Lab. No. 3)

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	½	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature




Youssef E. El-Dine
Dr. Eng. Youssef E. El-Dine
T: 011-422-3101



Company Name : شركة النخعي
 Project : Electric Express Train – HSR From Qous To Armanat
 Location : (ST: 641+100) E=32.9226620 N=25.8862030
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 26/7/2023
 Reporting Date : 30/7/2023
 Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	10.3

Signature 

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature

CEL
شركة الذهبى
مكتب معامل الاستشارات الهندسية
27 تموز 2023

Dr. Mohamed El-Maghrabi
Project Engineer
Civil Engineering

IAS
REGISTERED
Geotechnical Engineer

27 تموز 2023
27/7/2023
27/7/2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armut
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	70.1	Max 50 %	—	—
0.425 mm (No. 40)	35.4	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



319.891.437
319.891.437
319.891.437



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9224620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	36 %
	6.90	2.49	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.14 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Sample soil التراب
- 4- CBR > 20 for middle and lower embankments according project spec page No 36.

Signature

AE-0204 E-MH-000
Dr. H. G.
T/A Fax 002011 3040000

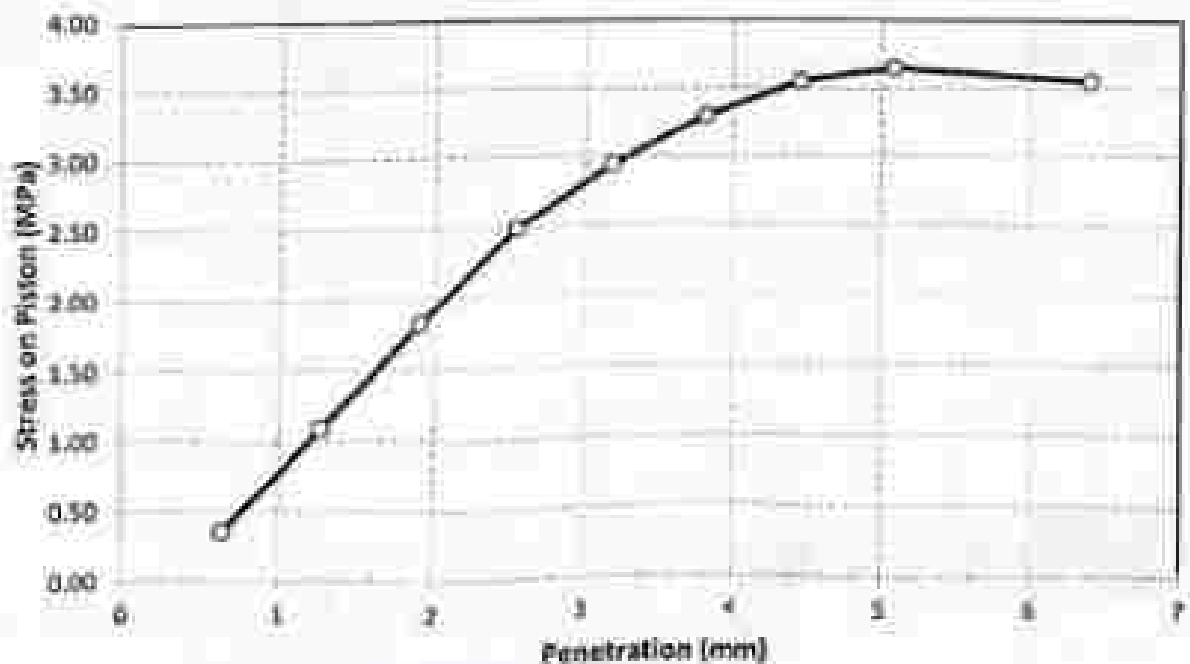


CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature / 
CEL
مكتب معامل الاستشارات الهندسية
2023/07/26
المرجع: 05-2

ELMAN FATHALLAH
Project Code
05-2-05-2

IAS
REGISTERED
CONSULTANT

05-2-05-2
05-2-05-2

Compaction test by using Sand - Cone Test Method
ASTM D-1556

- Degree of conduction based on photo test dated At

- ## Section 4.1



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Dear Gentleman,

Attached here with the delivered on 4/8/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 


Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	89.6
25	1	83.4
19	3/4	82.3
12.50	1/2	81.3
9.50	3/8	80.9
4.75	4	72.6
2.00	10	56.3
0.425	40	31.4

Signature 
مهندس / محمد عبد الله محمد
م.ع.م. ٢٠٢٣

11 El-Maria El-Ahmed Street
Zakaria, Cairo
Tel/Fax: 27357171 - 27359543



مركز خدمات العملاء
البريد الإلكتروني
info@cel-lab.com

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الاهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	13.8

Signature 

1st Mark E. Abbas Street
Zarqa, Amman
Tel/Fax: 2154721 - 2154660



1st Mark E. Abbas Street
Zarqa, Amman
Tel/Fax: 2154721 - 2154660

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qoos To Armanat
Location : (ST: 641+500) E= 492410,988 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /

CEL
مكتب مبادئ الاستشارات الهندسية
بمحافظة القاهرة
11562005
11562005

11562005
11562005
11562005



مكتب مبادئ الاستشارات الهندسية
بمحافظة القاهرة
11562005

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,688 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Soil Classification

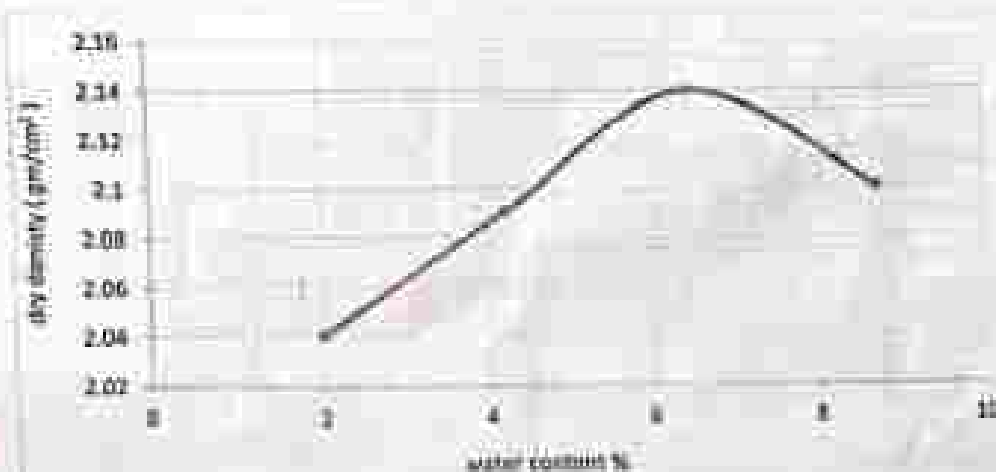
TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	56.3	Max 50 %	-----	-----
0.425 mm (No. 40).	31.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	13.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are **Comply** (or Not Comply) with specifications limits

Signature

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature

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مكتب محامل الاستشارات الهندسية
[Signature]

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.26
1.27	0.050	1.01
1.91	0.075	1.67
2.54	0.100	2.28
3.18	0.125	2.94
3.81	0.150	3.50
4.45	0.175	4.08
5.08	0.200	4.54
6.35	0.250	5.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	33.1 %
	6.90	2.28	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was corrected to dry density of = 2.14 (gm /cm³)
At = 6.4 % optimum water content
- 3- Surcharge load 4.50 Kgf
- 4- CBR > 10 for middle and lower subgrade materials according project spec page No 36:

Signature /

S.E. Mervat E. Attia Sherif
Zerath, Cairo
Tel/Fax : 0226702000 - 0226702001



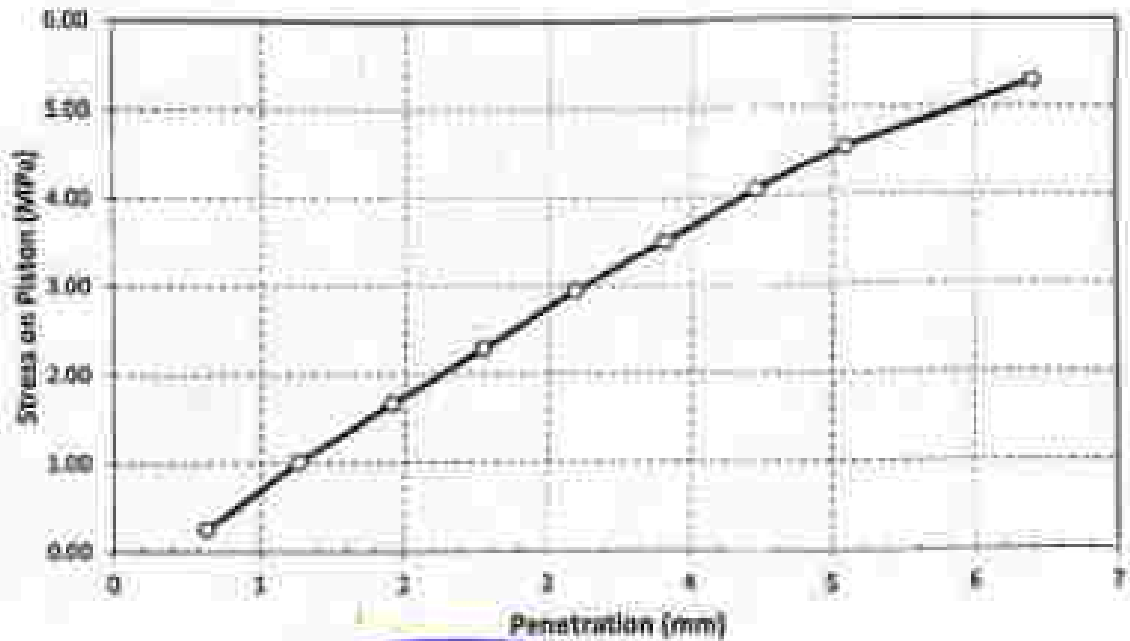
تم فحصه
بمختبر
معمل
معمل

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Signature

30 Mark E-PSH Test
Zurab, Gali
Tel: 011 2076200 - 2261291

IAS
ACCREDITED
Testing Laboratory

إدارة المختبر
مختبر التربة
مختبر الطرق

CEL

Consulting Engineering Bureau & Laboratories
مكتب مهندسين الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 16/08/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+440
Level : - 3.5 M
Report No. : 36

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1681	2.18	5.8	2.06	96.4%	Comply
2	641+380	1622	2.17	5.8	2.05	95.9%	Comply
3	641+420	1591	2.19	5.8	2.07	96.7%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 5.4 %

Signature :

15F Malek El Adhithy
Consulting, Cairo
Tel/Fax : 27362000 – 27362001



مكتب مهندسين الاستشارات الهندسية
15F Malek El Adhithy
Consulting, Cairo
Tel/Fax : 27362000 – 27362001

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26/7/2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1183

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 


CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8861630
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (N)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	¾	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature /



3 El Hadei El Hadei Street
Zakariya, Cairo
Tel & Fax : 010 391 437 - 010 391 437



أ. م. محمد أحمد
مهندس
مهندس

Company Name : شركة الفهيي
Project : Electric Express Train - HSR From Qous To Arman.
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.3

Signature : 





Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



10 Mark E. Alarabi
Zaidy, Cars
Tel/Fax: 2065777777



10 Mark E. Alarabi
Zaidy, Cars
Tel/Fax: 2065777777

Company Name : شركة الأعبي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	70.1	Max 50 %	—	—
0.425 mm (No. 40).	35.4	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply ☐ Not Comply) with specifications limits

Signature /



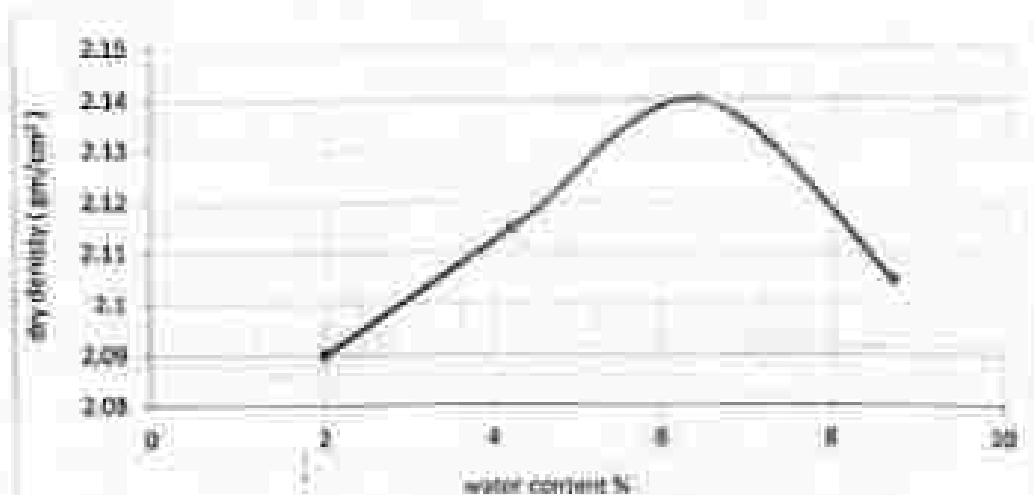
1-Ei Malek E-Rahai Street
Zurich, Ger.
Tel/Fax : 2296557 - 2296558



أ.م. هادي الأعبي
المهندس
رئيس قسم المعاملات

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature /


CEL
مكتب معامل الاستشارات الهندسية
شركة الذهبى
10, 001, 021
القاهرة - مصر

3 E Main El Masara
Zamalek, Cairo
Tel/Fax 2736527 - 2736531

IAS
ACCREDITED
Testing Laboratory

م. م. محمد عبد الله
م. م. محمد عبد الله
م. م. محمد عبد الله

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value 6.90	Sample results 2.49	36 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (gm /cm³)
At 96.4 % optimum wet compaction.
- 3- So, charge load = 4.50 Kg
- 4- CBR > 10 for all depths of the embankment according project spec page No 36.

Dr. Hossam M. Elmaghrabi
Zurab, Cairo
Tel: Fax: 20462211-20462010



Dr. Hossam M. Elmaghrabi
Zurab, Cairo
Tel: Fax: 20462211-20462010

CEL

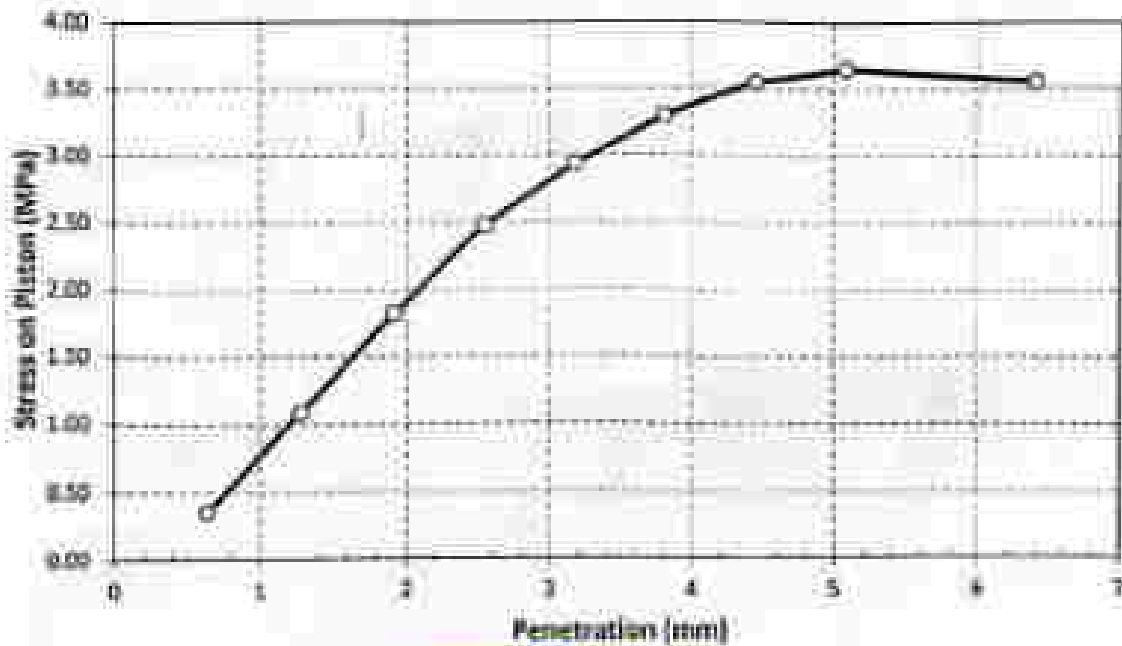
Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test

ASTM D-1883



Signature /



16 Milla El-Far Street
Zamalek, Cairo
T: +966 2 264521-2730009



مكتب محامل الاستشارات
قنوات القاهره
تلفون: 264521-2730009

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armanat
Testing Date : 16/08/2023
Soil type : Middle Embankment
Location : St From 641+440 To 641+500
Level : - 4.5 M
Report No. : 37

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+480	1100	2.18	5.8	2.06	96.4%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 



Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Dear Gentleman,

Attached here with the delivered on 26 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.2
37.5	1.5	95.2
25	1	91.5
19	¾	88.2
12.50	½	84.5
9.50	3/8	80.2
4.75	4	73.5
2.00	10	70.1
0.425	40	35.4

Signature


CEL
مكتب معامل الاستشارات الهندسية
019 921 411
القاهرة - مصر

11, Mousa El Attar Street
Zakaria, Giza
Tel/Fax: 019/921 411 - 019/921 412



مركز معمل الاستشارات
مكتب المعمل
019/921 411 - 019/921 412

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.3

Signature



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /

CEL
مكتب معامل الاستشارات الهندسية
م. محمد عبد الله محمد

3 El-Minia El-Ahli Street
El-Minia, Egypt
Tel/Fax: 010365021 - 2770000



م. محمد عبد الله محمد
م. محمد عبد الله محمد
م. محمد عبد الله محمد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : (ST: 641+100) E=32.9226629 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	70.1	Max 50 %	-----	-----
0.425 mm (No. 40)	35.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.3	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

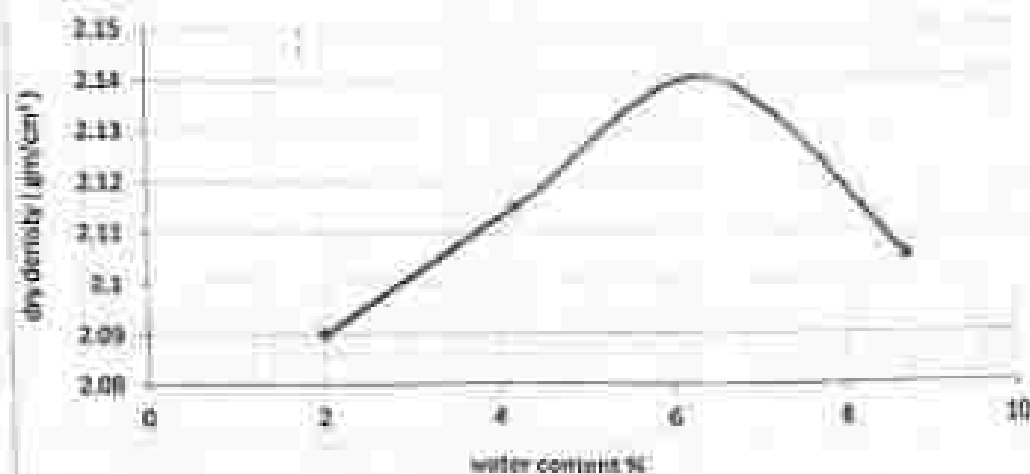
The test results are (☒ Comply ☐ Not Comply) with specifications limits.

Signature /


CEL
مكتب محاميل الاستشارات الهندسية
3 شارع 30 شارع 30 شارع 30

Company Name : شركة الفضي
Project : Electric Express Train - HSR From Qous To Armanat
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/7/2023
Reporting Date : 30/7/2023
Reporting No. : 05-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.14
- Optimum moisture content % : 6.4 %

Signature

3 El Mank El Akad Street
Zarqa, Giza
Tel/Fax: 2260517 - 2260340

IAS
ACCREDITED
Testing Laboratory

إلى السيد المهندس
المهندس
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+100) E=32.9226620 N=25.8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.36
1.27	0.050	1.09
1.91	0.075	1.83
2.54	0.100	2.49
3.18	0.125	2.94
3.81	0.150	3.30
4.45	0.175	3.55
5.08	0.200	3.65
6.35	0.250	3.55

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	36 %
	6.90	2.49	

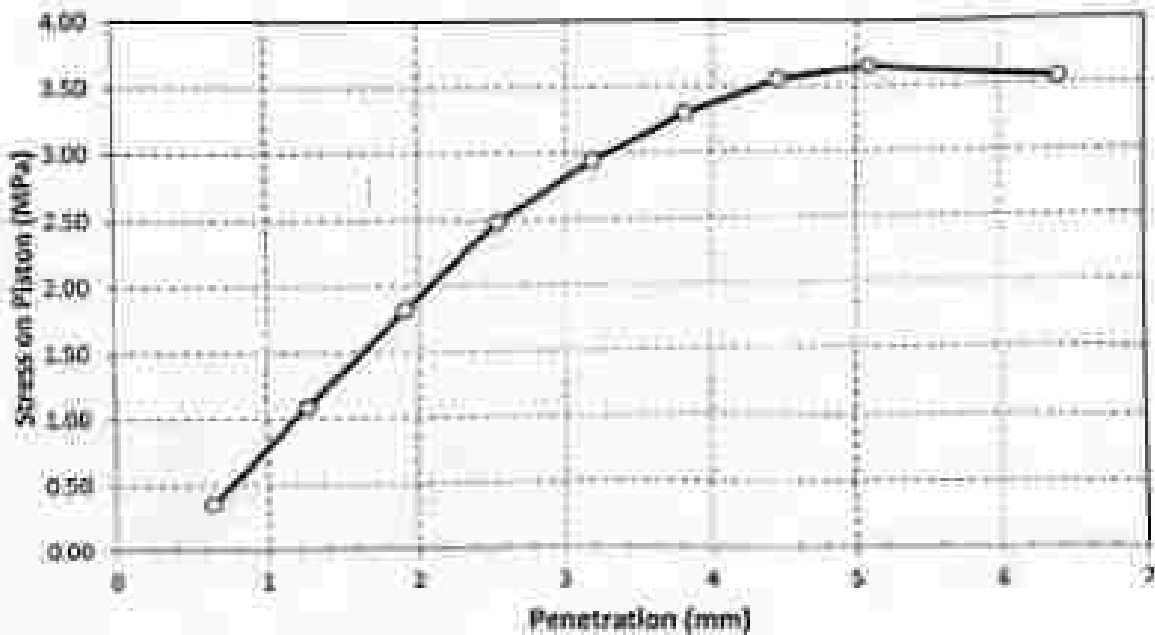
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 (gm/cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load = 200
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

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Consulting Engineering Bureau & Laboratories
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10110, 10111, 10112, 10113, 10114, 10115, 10116, 10117, 10118, 10119, 10120, 10121, 10122, 10123, 10124, 10125, 10126, 10127, 10128, 10129, 10130, 10131, 10132, 10133, 10134, 10135, 10136, 10137, 10138, 10139, 10140, 10141, 10142, 10143, 10144, 10145, 10146, 10147, 10148, 10149, 10150, 10151, 10152, 10153, 10154, 10155, 10156, 10157, 10158, 10159, 10160, 10161, 10162, 10163, 10164, 10165, 10166, 10167, 10168, 10169, 10170, 10171, 10172, 10173, 10174, 10175, 10176, 10177, 10178, 10179, 10180, 10181, 10182, 10183, 10184, 10185, 10186, 10187, 10188, 10189, 10190, 10191, 10192, 10193, 10194, 10195, 10196, 10197, 10198, 10199, 10200, 10201, 10202, 10203, 10204, 10205, 10206, 10207, 10208, 10209, 10210, 10211, 10212, 10213, 10214, 10215, 10216, 10217, 10218, 10219, 10220, 10221, 10222, 10223, 10224, 10225, 10226, 10227, 10228, 10229, 10230, 10231, 10232, 10233, 10234, 10235, 10236, 10237, 10238, 10239, 10240, 10241, 10242, 10243, 10244, 10245, 10246, 10247, 10248, 10249, 10250, 10251, 10252, 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Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+100) E=32,9226620 N=25,8862030
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 22/7/2023
Reporting Date : 26/7/2023
Reporting No. : 05-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



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Zakaria, Giza
Tel/Fax (202) 437-1700/437-1701



مركز التحليلات
مركز الاختبارات
مركز المعايرة

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 21/08/2023
Soil type : Middle Embankment
Location : St From 641+460 To 641+540
Level : - 4 M
Report No. : 41

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+490	1457	2.20	5.8	2.08	97.1%	Comply
2	641+520	1610	2.20	5.3	2.09	97.5%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.14 gm/cm³
- At optimum moisture content = 6.4 %

• Signature / 

El Mansour El Mouta
Zouhra, Cairo
Tel/Fax: 27365031 - 27365033



إلى السيد المهندس
م. م. م. م. م. م.
م. م. م. م. م. م. م.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Dear Gentleman,

Attached here with the delivered on 4 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /





Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arment

Testing Date : 06/09/2023

Soil type : Middle Embankment

Location : St From 641+440 To 641+620

Level : - 3 M

Report No. : 55

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+470	2046	2.22	5.3	2.10	95.2%	Comply
2	641+500	1856	2.22	5.5	2.10	95.2%	Comply
3	641+530	1353	2.22	5.5	2.11	95.4%	Comply
4	641+560	1544	2.22	5.3	2.10	95.2%	Comply
5	641+590	1398	2.21	5	2.11	95.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.4 %

Signature :


مهندس محمد المهدى
مهندس استشارى
249 - 191 - 187
249 - 191 - 187

3 El Mahi El Amir Street
Zamalek, Cairo
Tel/Fax: 27367531 - 27367550



مركز معمل الاستشارات
الهندسية
مكتب معمل الاستشارات
الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31/8/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature /



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Zerokh, Cairo
Tel& Fax: 27367231 - 27363083



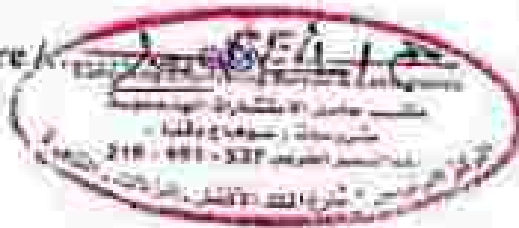
إدارة معمل الاستشارات
الزمالك - القاهرة
الهاتف : 27367231 - 27363083

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0


Signature 

Company Name : شركة الأهرى
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	41.2	Max 50 %	—	—
0.425 mm (No. 40)	28.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (~~Not~~ Comply - ☒ Not Comply) with specifications limits

Signature / 

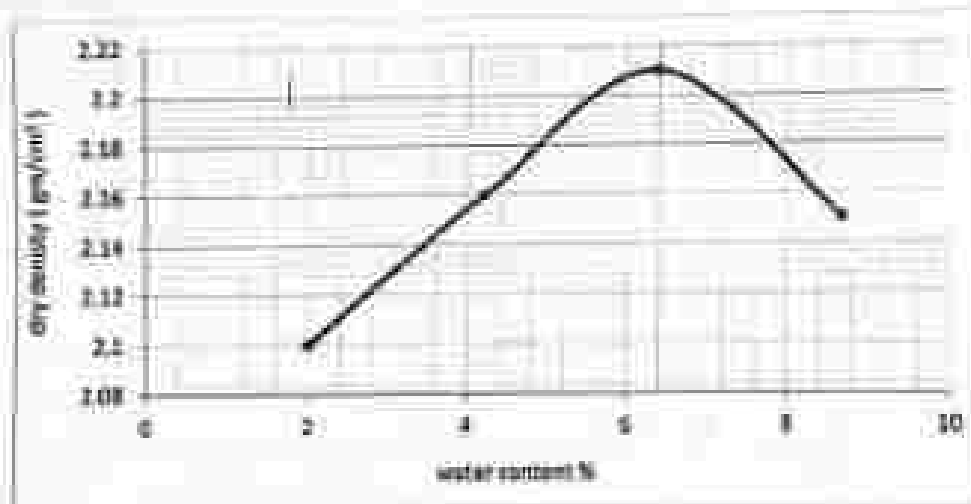
J E Maki E-Abou Shaw
Zamalek, Cairo
Tel & Fax: 2736/237 - 2736/2003



إدارة المعاملات
إدارة الجودة
إدارة البيئة

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature



3 El-Mark El-Ahmed Street
Zamalek, Cairo
Tel/Fax: 27365231 - 27365232



مختبر
مختبر
مختبر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials ASTM D 1557

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

1 P. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238



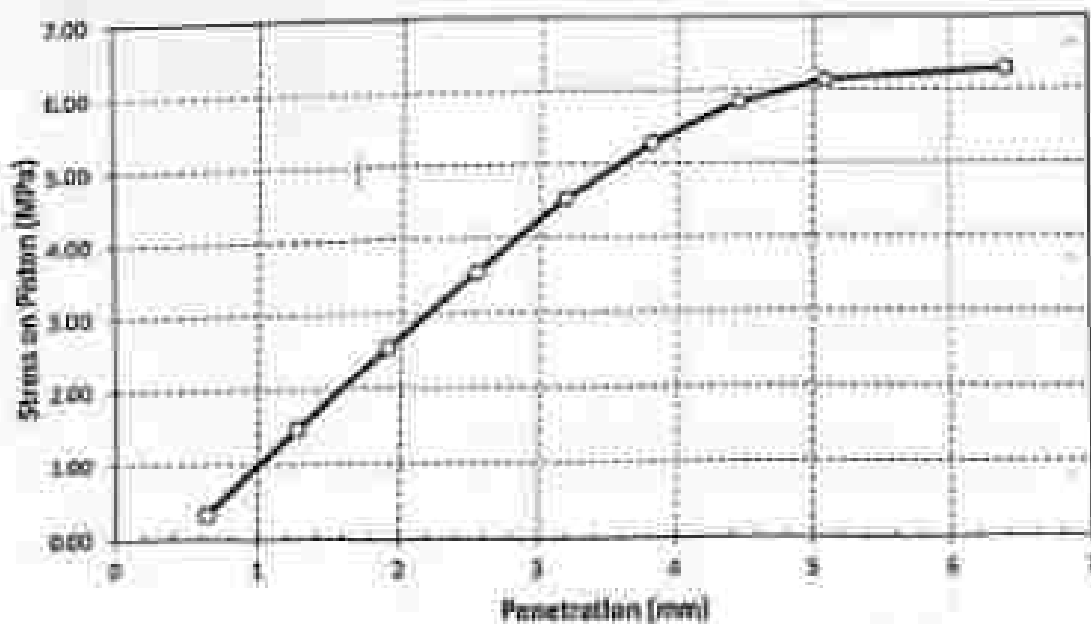
Dr. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature /

[Handwritten Signature]
مهندس محمد عبد الله
مهندس الاستشارات الهندسية
مكتب معامل الاستشارات الهندسية
2023/09/04
2023/08/31

3 Etimel E Atol Sheet
Zemlin, Cals
Tel/Fax: 273623 / 273630

IAS
ACCREDITED
LABORATORY

مهندس محمد عبد الله
مهندس الاستشارات الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31 / 8 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature



3 El Mada El Ahd Street
Zohra, Cairo
Tel & Fax : 27367231 - 27367403



أحمد محمد الأحمدي
مهندس / مهندس
مهندس / مهندس



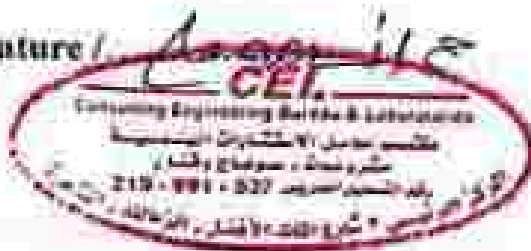
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



3 E Malek El Abdel Street
Zeroben, Cairo.
Tel/Fax: 27367231 - 27367683



إلى السيد المهندس
إلى السيد المهندس
إلى السيد المهندس

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



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مكتب محامل الاستشارات الهندسية

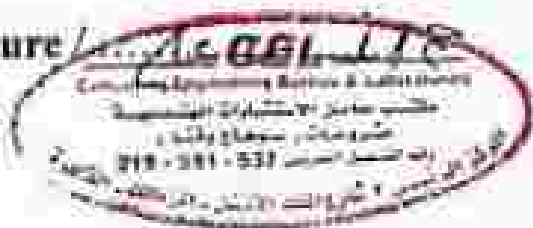
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	41.2	Max 50 %	-----	-----
0.425 mm (No. 40).	28.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



S E Mostak E Attia Elwan,
Technical Exam



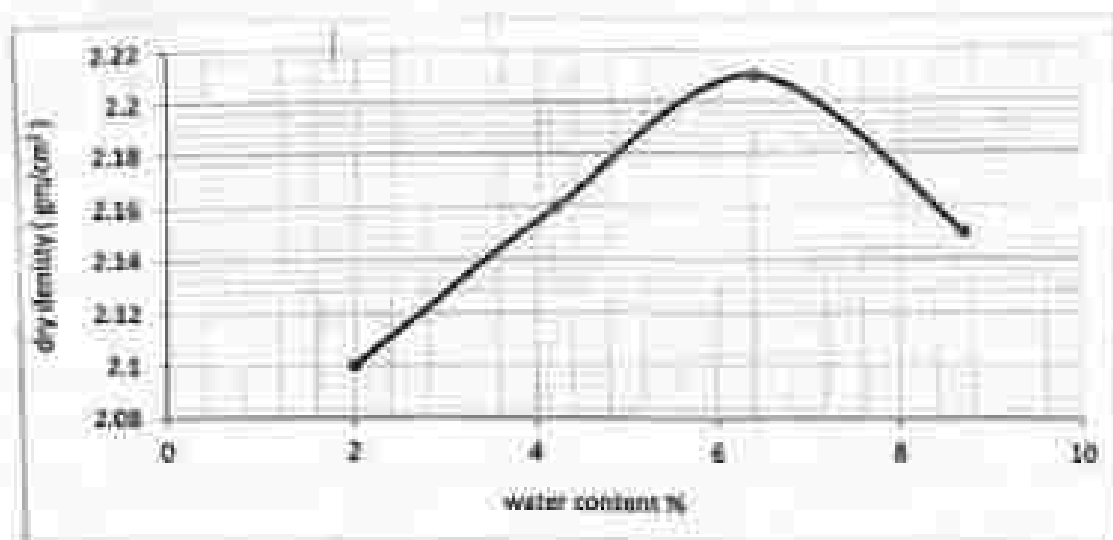
أ.م.ع. مصطفى
عبدالله

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.99	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for mid and low embankments, according project spec page No 36.

Signature

Dr. El Mostafa El Ghayour
Zarqa, Jordan
Tel & Fax: 02047531 - 02765345



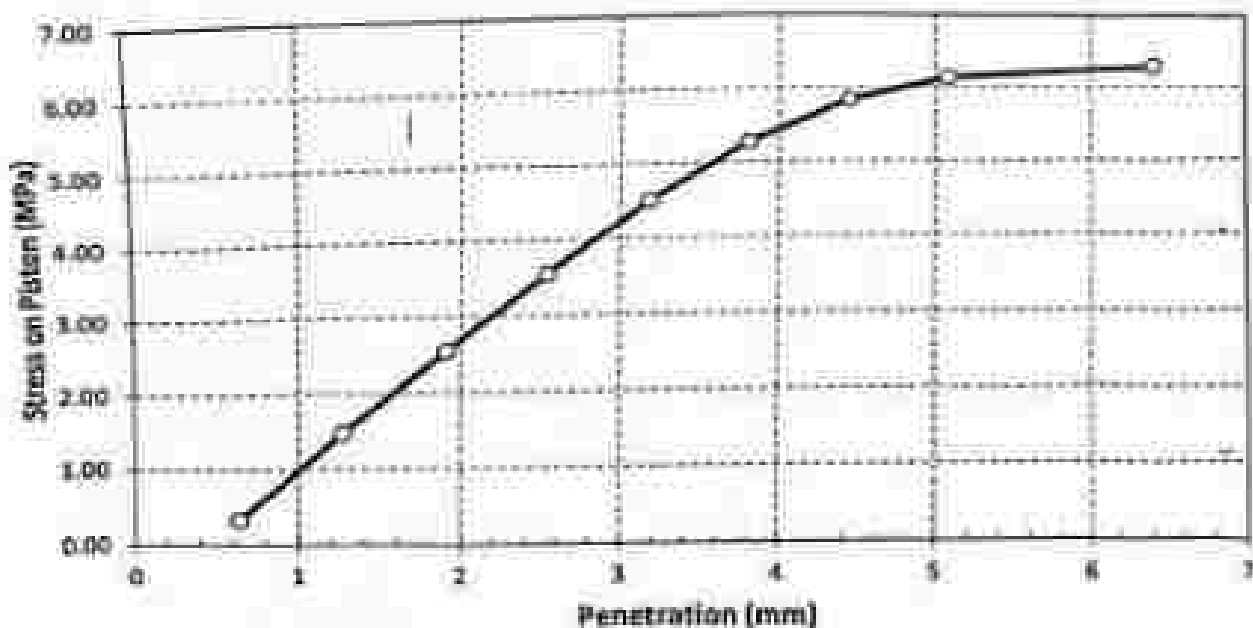
مركز البحوث والدراسات
الزرقاء - الأردن
هاتف: 02047531 - 02765345

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
218 - 591 - 537
القاهرة - مصر

3 El Madi El Atad Street
Zakaria, Cairo
T/A Fax : 27162331 - 27163050

IAS
ACCREDITED
Testing & Calibration

مركز اختبار المعايير
التركيبة : القاهرة
تليفون : 27162331 - 27163050

Company Name : شركة الذهبى

Project : Electric Express Train – HSR From Qous To Arment

Testing Date : 12/09/2023

Soil type : Middle Embankment

Location : St From 641+160 To 641+300

Level : -2 M

Report No. : 58

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+180	1792	2.25	5.5	2.13	97.0%	Comply
2	641+230	1698	2.24	5.3	2.13	96.8%	Comply
3	641+260	1374	2.25	5.5	2.14	97.1%	Comply
4	641+290	1058	2.22	5.5	2.10	95.6%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature: 

151 Main St. Max 556-777
Zorah, Cairo
Tel/Fax: 2734720 - 2734701



إلى السيد المهندس
م. محمد عبد الله
م. محمد عبد الله

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Dear Gentleman,

Attached here with the delivered on 7/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	90.1
19	¾	84.2
12.50	½	77.2
9.50	3/8	71.5
4.75	4	59.9
2.00	10	46.3
0.425	40	28.0

Signature /



3 El Mulek El Agha Street,
Zamalek, Cairo
Tel/Fax: 27362521 - 27362001



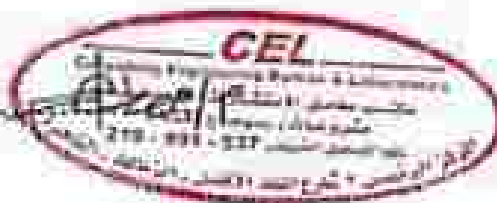
م. محمد الجبلى
إبراهيم الجبلى
م. محمد الجبلى
TEL: 01-27362521

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.6

Signature /



3 E. Malek E. Aldal Street
Zayed, Cairo
Tel/Fax : 27352021 - 27352020



3 شارع مالك عبد الدال
زayed، القاهرة
هاتف / فاكس : 27352021 - 27352020

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



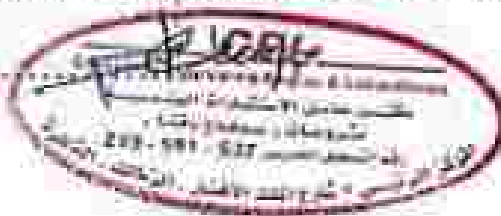
Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	46.3	Max 50 %	—	—
0.425 mm (No. 40)	28.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.6	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



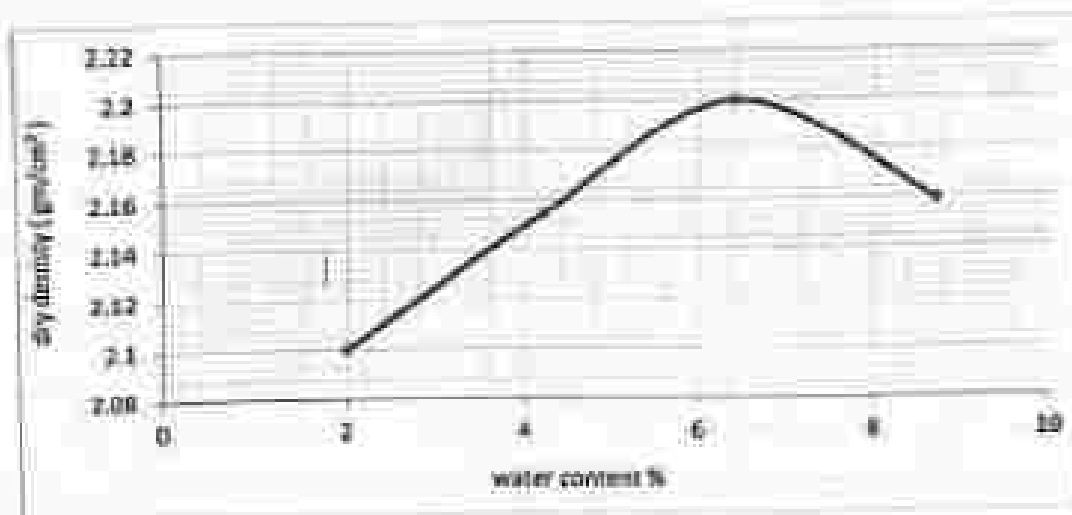
J E-Mohr E-Abdo Street
Zamalek, Cairo
Tel/Fax: 27362707 - 27362883



إم. محمد
عبد الله
مهندس مدني
273-581-527

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.60
2.54	0.100	3.60
3.18	0.125	4.56
3.81	0.150	5.31
4.45	0.175	6.09
5.08	0.200	6.56
6.35	0.250	7.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52.1 %
	6.98	3.60	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20(gm /cm³)
A1 = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

3 El Malli El Aini
Zirak, Cairo
Tel Fax: 23347237 - 23347661



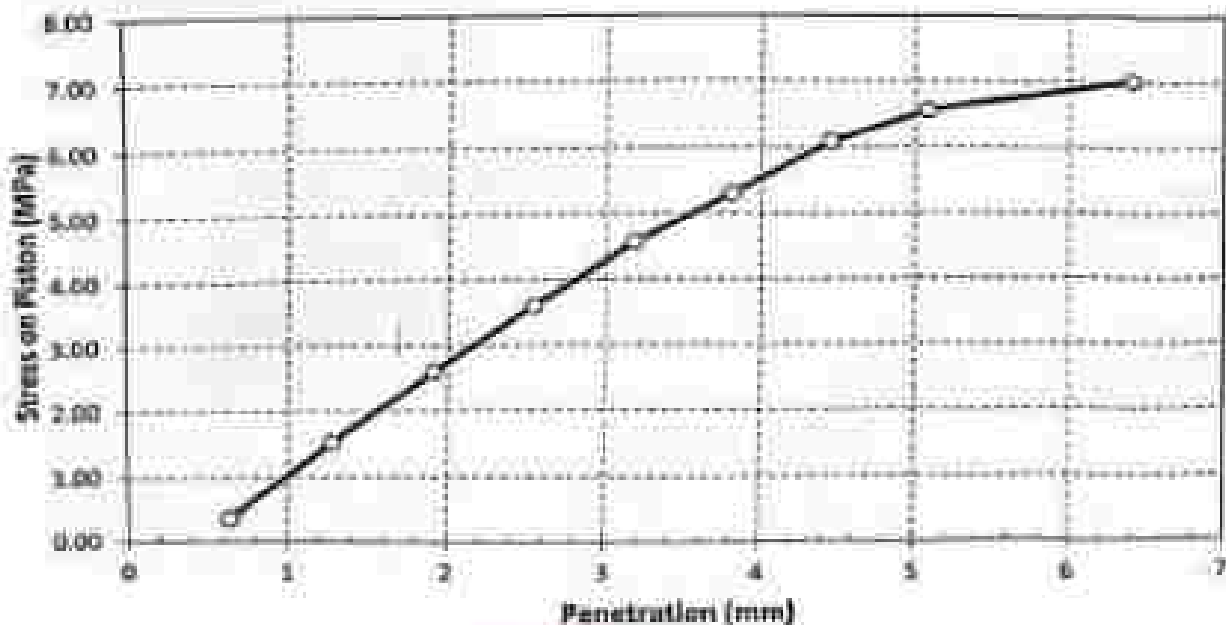
أحمد محمد العبد
إبراهيم العبد
المهندسين
23347237 - 23347661

CEL

Consulting Engineering Bureau & Laboratories
مكتب محال الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature /



3 D Mohd El Attar Elmer
Zaria, Cam
Tel/Fax : 27049531 - 27049532

IAS

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المرجع
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CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الدقي
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 16/09/2023
Soil type : Middle Embankment
Location : St From 641+200 to 641+300
Level : -1.5 M
Report No. : 63

**Compaction test by using Sand – Cone Test Method
ASTM D- 1555**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	1826	2.24	6	2.11	95.9%	Comply
2	641+240	1440	2.23	6.4	2.10	95.2%	Comply
3	641+260	1633	2.23	6	2.11	95.7%	Comply
4	641+280	1042	2.28	5.8	2.16	98.1%	Comply

Degree of compaction based on proctor test dated A1

Max. dry density =2.18 gm/cm³

Optimum moisture content =5.4%

Signature



3 El Maza El Ahdal Street
Zamalek, Cairo
Tel/Fax: 23367201 - 23367202



شركة الدقي
مركز القاهرة
الهاتف 23367201 - 23367202

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman ,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Consulting Engineering Bureau & Laboratories
Signature: 
278 - 281 - 282
شارع محمد عبد الحليم أبو العز، القاهرة

3 El Nile El Atou Street
Zamalek, Cairo
Tel/Fax: 22302531 - 2230303



إلى مكتب المختبر
قريّة القاهرة
شماره التليفون : 22302531

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

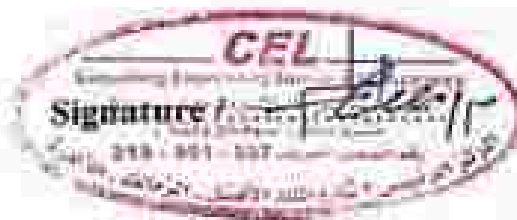
Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9


Signature *[Handwritten Signature]*

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / 

 مهندس /
 رقم الترخيص : 209 - 001 - 033
 رقم الهاتف : 27367301 - 27363683
 رقم الفاكس : 27367301 - 27363683

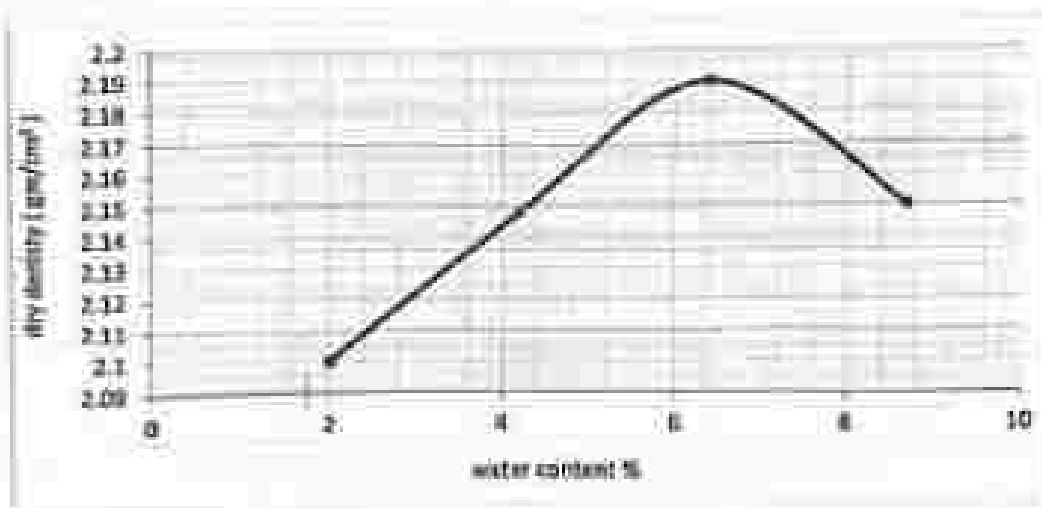
3 El Mank El Atad Street
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Tel/Fax: 27367301 - 27363683



مركز المحامل الهندسية
الزمالك - القاهرة
الهاتف : 27367301 - 27363683
الفاكس : 27367301 - 27363683

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature : 
215 - 458 / 422 / 423 / 424 / 425 / 426 / 427 / 428 / 429 / 430 / 431 / 432 / 433 / 434 / 435 / 436 / 437 / 438 / 439 / 440 / 441 / 442 / 443 / 444 / 445 / 446 / 447 / 448 / 449 / 450 / 451 / 452 / 453 / 454 / 455 / 456 / 457 / 458 / 459 / 460 / 461 / 462 / 463 / 464 / 465 / 466 / 467 / 468 / 469 / 470 / 471 / 472 / 473 / 474 / 475 / 476 / 477 / 478 / 479 / 480 / 481 / 482 / 483 / 484 / 485 / 486 / 487 / 488 / 489 / 490 / 491 / 492 / 493 / 494 / 495 / 496 / 497 / 498 / 499 / 500 / 501 / 502 / 503 / 504 / 505 / 506 / 507 / 508 / 509 / 510 / 511 / 512 / 513 / 514 / 515 / 516 / 517 / 518 / 519 / 520 / 521 / 522 / 523 / 524 / 525 / 526 / 527 / 528 / 529 / 530 / 531 / 532 / 533 / 534 / 535 / 536 / 537 / 538 / 539 / 540 / 541 / 542 / 543 / 544 / 545 / 546 / 547 / 548 / 549 / 550 / 551 / 552 / 553 / 554 / 555 / 556 / 557 / 558 / 559 / 560 / 561 / 562 / 563 / 564 / 565 / 566 / 567 / 568 / 569 / 570 / 571 / 572 / 573 / 574 / 575 / 576 / 577 / 578 / 579 / 580 / 581 / 582 / 583 / 584 / 585 / 586 / 587 / 588 / 589 / 590 / 591 / 592 / 593 / 594 / 595 / 596 / 597 / 598 / 599 / 600 / 601 / 602 / 603 / 604 / 605 / 606 / 607 / 608 / 609 / 610 / 611 / 612 / 613 / 614 / 615 / 616 / 617 / 618 / 619 / 620 / 621 / 622 / 623 / 624 / 625 / 626 / 627 / 628 / 629 / 630 / 631 / 632 / 633 / 634 / 635 / 636 / 637 / 638 / 639 / 640 / 641 / 642 / 643 / 644 / 645 / 646 / 647 / 648 / 649 / 650 / 651 / 652 / 653 / 654 / 655 / 656 / 657 / 658 / 659 / 660 / 661 / 662 / 663 / 664 / 665 / 666 / 667 / 668 / 669 / 670 / 671 / 672 / 673 / 674 / 675 / 676 / 677 / 678 / 679 / 680 / 681 / 682 / 683 / 684 / 685 / 686 / 687 / 688 / 689 / 690 / 691 / 692 / 693 / 694 / 695 / 696 / 697 / 698 / 699 / 700 / 701 / 702 / 703 / 704 / 705 / 706 / 707 / 708 / 709 / 710 / 711 / 712 / 713 / 714 / 715 / 716 / 717 / 718 / 719 / 720 / 721 / 722 / 723 / 724 / 725 / 726 / 727 / 728 / 729 / 730 / 731 / 732 / 733 / 734 / 735 / 736 / 737 / 738 / 739 / 740 / 741 / 742 / 743 / 744 / 745 / 746 / 747 / 748 / 749 / 750 / 751 / 752 / 753 / 754 / 755 / 756 / 757 / 758 / 759 / 760 / 761 / 762 / 763 / 764 / 765 / 766 / 767 / 768 / 769 / 770 / 771 / 772 / 773 / 774 / 775 / 776 / 777 / 778 / 779 / 780 / 781 / 782 / 783 / 784 / 785 / 786 / 787 / 788 / 789 / 790 / 791 / 792 / 793 / 794 / 795 / 796 / 797 / 798 / 799 / 800 / 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810 / 811 / 812 / 813 / 814 / 815 / 816 / 817 / 818 / 819 / 820 / 821 / 822 / 823 / 824 / 825 / 826 / 827 / 828 / 829 / 830 / 831 / 832 / 833 / 834 / 835 / 836 / 837 / 838 / 839 / 840 / 841 / 842 / 843 / 844 / 845 / 846 / 847 / 848 / 849 / 850 / 851 / 852 / 853 / 854 / 855 / 856 / 857 / 858 / 859 / 860 / 861 / 862 / 863 / 864 / 865 / 866 / 867 / 868 / 869 / 870 / 871 / 872 / 873 / 874 / 875 / 876 / 877 / 878 / 879 / 880 / 881 / 882 / 883 / 884 / 885 / 886 / 887 / 888 / 889 / 890 / 891 / 892 / 893 / 894 / 895 / 896 / 897 / 898 / 899 / 900 / 901 / 902 / 903 / 904 / 905 / 906 / 907 / 908 / 909 / 910 / 911 / 912 / 913 / 914 / 915 / 916 / 917 / 918 / 919 / 920 / 921 / 922 / 923 / 924 / 925 / 926 / 927 / 928 / 929 / 930 / 931 / 932 / 933 / 934 / 935 / 936 / 937 / 938 / 939 / 940 / 941 / 942 / 943 / 944 / 945 / 946 / 947 / 948 / 949 / 950 / 951 / 952 / 953 / 954 / 955 / 956 / 957 / 958 / 959 / 960 / 961 / 962 / 963 / 964 / 965 / 966 / 967 / 968 / 969 / 970 / 971 / 972 / 973 / 974 / 975 / 976 / 977 / 978 / 979 / 980 / 981 / 982 / 983 / 984 / 985 / 986 / 987 / 988 / 989 / 990 / 991 / 992 / 993 / 994 / 995 / 996 / 997 / 998 / 999 / 1000

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Tel/Fax: 27367231 - 27363093



في مكتب المعامل
في مكتب المعامل
في مكتب المعامل
في مكتب المعامل

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge used 4.50 Kg.
- 4- CBR ≥ 10 for middle and lower embankments according project spec page No 35.

Signature _____

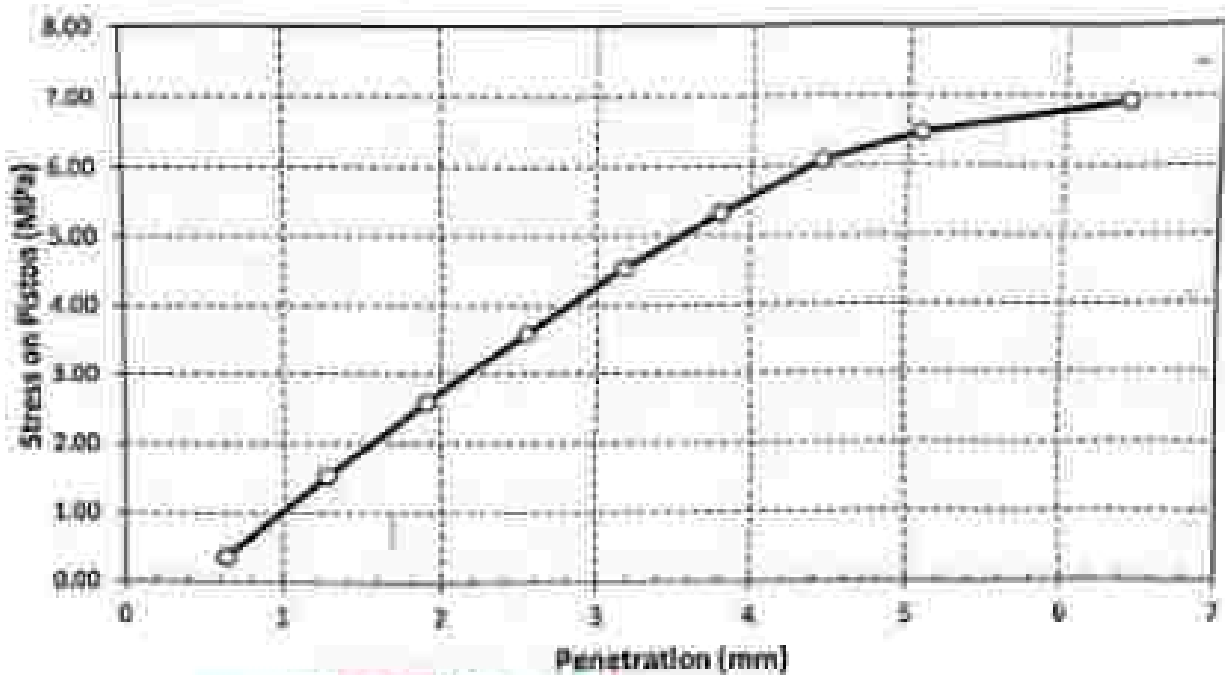
10 Malek
Dr. Malek Gani
Tel/Fax: 27367221 - 27367662



إبراهيم محمد الجليلي
إبراهيم الجليلي
مهندس - مقيم

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test
ASTM D-1883



Signature: 
2023-09-12
CEL

Contents شركة الاهى للمقاولات والدراسات الهندسية :

Project : Electric Traction Tests - Sector (2) - Giza to Arment.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18126/2312-04 and project requirements
Test Location : Station 541+230 to 541+300
Station : 541+240
Level : A.S
Test Date : 19/05/2023
Report Date : 19/05/2023
Type of soil : Original earth
Report No. : 1

Dear Gentlemen,

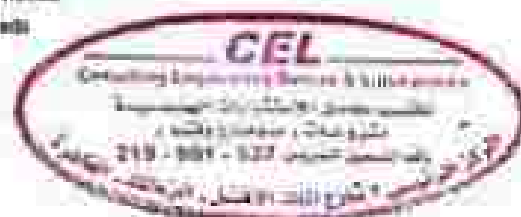
According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 200 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel strips/plates with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Dial indicator/measuring device with scale vertically 750 for (0/100mm)
7. Reaction loading system by roller-compass with weight approximately 12 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clear the ground surface area to the required level with undisturbed soil
2. Install loading plates 300 mm and 200 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to testing the test setup preloading about 20 seconds.
4. The dial-gauge and the dial-gauge shall be zeroed out
5. For a 300 mm loading plate, the test values are 3.2 kN/m²
6. The load shall be applied in six stages, in approximately equal increments, with the required maximum vertical stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, i.e. 33 %, 25 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the percentage stage of the first cycle (as final test load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:-

- Location of test site - Dimension of loading plate.
- Measuring device used - Type of soil.
- Type of Binding material below the plate -Weathering condition.
- Time and date of measurements - Unusual observation made during test.
- Dial gauge reading and corresponding normal stress - Loading-settlement curve.
- Description of the soil condition below the plate after testing.

Result

- Type of soil : Original earth
- Job requirement : $E_{vd} = 40 \text{ MPa}$

Item	Description
Type of loading material below the plate	Water of soil
Plate Diameter (mm)	300
Size of measuring	1.00mm/0.01
Unusual observation made during test	NO
Description of the soil condition below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{vd}/E_{vs} Ratio
	From	To			E_{vd} (MPa)	E_{vd} (Mpa)	
1	041+220	041+300	041+240	-1.2	33.8	140.7	4.13



Company Name : شركة الأهلي للمقاولات والتوريدات المعمورة
Project : Electric Express Train - Sector (2) - Quesna Area
Test Date : 16/09/2023
Report date : 19/09/2023
Station : 641+340
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
004 18134

Loading Stage (1)

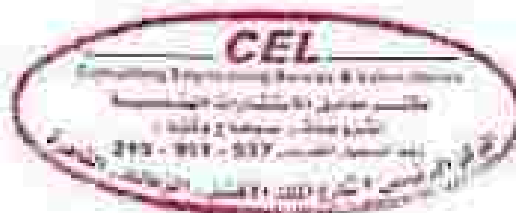
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.83	15.20	0.75	15.25	0.70	0.74
2	1.66	15.45	1.50	15.50	1.45	1.40
3	2.50	15.65	1.80	15.65	1.75	2.00
4	3.33	15.85	2.30	15.75	2.00	2.50
5	4.17	15.95	2.55	15.85	2.60	2.87
6	5.00	16.15	3.40	16.10	3.00	3.64

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	15.45	2.30	15.55	2.07	3.00
2	1.66	15.25	2.35	15.35	2.45	2.64
3	0.83	15.05	2.35	15.05	2.02	2.40

Loading Stage (2)

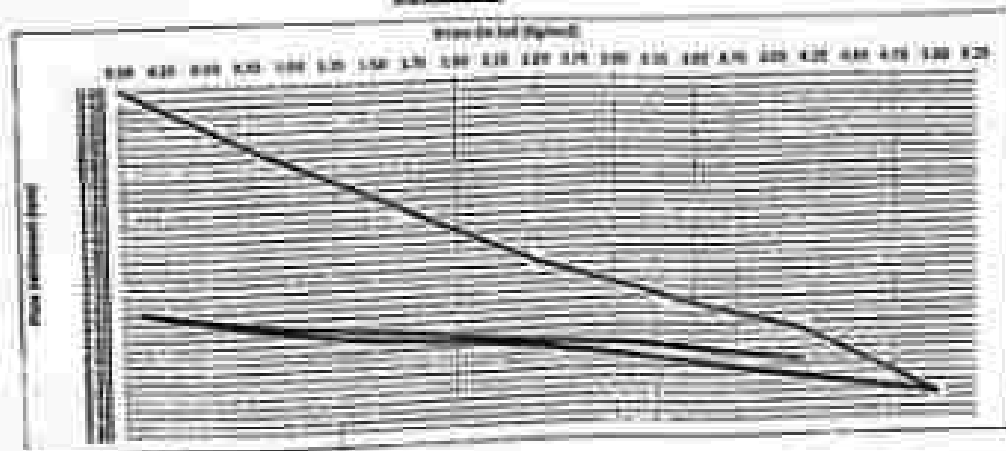
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	2.15	15.05	2.17	2.60
unloading	1.66	15.15	2.20	15.05	2.38	2.80
stress is reached						
2	3.30	15.44	2.35	15.45	2.55	2.95
3	3.33	15.55	2.42	15.55	2.69	3.00
4	4.17	15.65	2.57	15.55	2.88	3.23



Company Name
Project
Test item
report date
Station
Test No.

[illegible]

Nondestructive Static Plate Load Tests of Soils



Leading (T)	0	1	2	3	4	5	6
Simple (L ₀)	0	366	1073.8	1760.5	2332.8	2885.7	3423.3
Series (L ₀ and L ₁)	0.00	0.33	1.68	3.35	5.35	6.77	8.20
Settlement (L ₀)	0.00	0.74	1.80	2.68	3.56	4.47	5.34

Outcasing (%)	1	2	3	4
Superficial	5.53	17.68	88.4	73
Deep (Highly)	0.00	2.50	1.250	0.75
Bottomout (none)	2.54	3.22	2.84	2.62

[illegible]

Leading (J)	0	1	2	3	4	5
Image(X)	0	298.290	1772.8	1784.3	2552.4	2546.1
Wings (Plumett)	0.50	0.83	1.86	2.80	3.38	4.17
Surfmount (mrt)	0.48	2.48	2.40	2.48	1.80	2.20

2.1 (group) = 100	2.1 (group) = 100	2.1 (group) = 100	2.1 (group) = 100
2.1 (group) = 100	2.1 (group) = 100	2.1 (group) = 100	2.1 (group) = 100

Fig. 1. *Structure of presentation during the testing stage*

Group = Individuals = set of different individuals forming the population of agents

11. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

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Fig. 6. Collected in different communities in 1998 and 1999 for the western Gulf of Mexico.



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 12/09/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+420
Level : ± 2 M
Report No. : 59

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+325	1644	2.29	5.2	2.17	98.7%	Comply
2	641+350	1053	2.23	5.8	2.11	95.7%	Comply
3	641+380	1051	2.26	5.8	2.14	97.3%	Comply
4	641+410	1387	2.24	5.8	2.11	96.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتبه محاسب الاستشارات الهندسية
10/ Middle Embankment, HSR From Qous To Arman
Cairo, Egypt
Tel: 011 2204020 - 2700001



10/ Middle Embankment, HSR From Qous To Arman
Cairo, Egypt
Tel: 011 2204020 - 2700001

المهندس
أحمد محمد
مهندس
مهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Dear Gentleman,

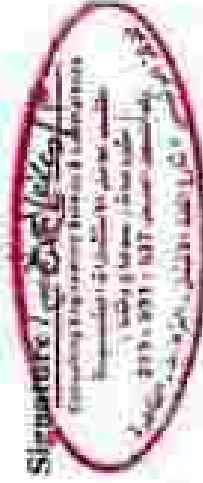
Attached here with the delivered on 7 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



301 Main El Masr Elou
Zakaria, Cairo
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Zakaria, Cairo
Tel: Fax: 2246737 - 2246738


CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الطائي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.1
37.5	1.5	97.3
25	1	92.1
19	3/4	86.2
12.50	1/2	78.2
9.50	3/8	72.5
4.75	4	57.9
2.00	10	44.3
0.425	40	26.0

Signature:  J.E. Mulla
مدير المختبر
J.E. Mulla Engineering Bureau & Laboratories
No. 10-3, ST: 641+400, E: 492410.088, N: 2862759.57
Qous, Nineveh Governorate, Iraq

J.E. Mulla (E. Mulla) Owner
Solely in Charge
Tel/Fax: 09127777777 - 07700000000

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Calibrating Laboratory

مختبر معتمد
للمعايرة
والقياسات

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار

Company Name : شركة النخعي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.2

CEL
Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار
Signature: *[Signature]*
www.cel-lab.com

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Director, Civil
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IAS
ACCREDITED

Dr. Ezzamel El Ashm El Ashm
Director, Civil
Tel: No. 7756753 - 37762303



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

الترقية الفنية : Company Name :

Project : Electric Express Train – HSR From Quus To Armand

Location
: ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 7/09/2023

Remortgaging Date : 11/09/2023

Reporting No. : 103

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



16 Maple Court
Zurich, Conn.
Tel/Fax: 203/291-2700



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Journal of Internal Medicine 247: 105–112

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Soil Classification

TEST	Results (%)	Limits according Projects Spec		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	44.3	Max 50 %	-----	-----
0.425 mm (No. 40)	26.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
Dr. Hani El-Mohamed
مهندس هاني محمد العبد
2008 - 2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

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Dr. Hani El-Mohamed
Dr. Hani, Cairo
Tel. No. 25807531 - 27753003

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسب الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

mm	penetration		stress on piston (Mpa)
	mm	Inch	
0.64		0.025	0.34
1.27		0.050	1.50
1.91		0.075	2.57
2.54		0.100	3.57
3.18		0.125	4.54
3.81		0.150	5.27
4.45		0.175	6.06
5.08		0.200	6.34
6.35		0.250	6.90
CBR Result	Stress (Mpa)		CBR 100 %
	50 Value	Sample result	
At 6.1 inch (2.34 mm) penetration	6.00	3.57	51.7 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.

3- Exchange load 4.50 Kg

- 4- Call 7-10 for middle of add lower embankments according project spec page No 36

Signature:

2023/09/11 11:05:00
2023/09/11 11:05:00
2023/09/11 11:05:00

IAS

م. محمد العبدالله
م. محمد العبدالله
م. محمد العبدالله

CEL

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مكتبية معامل الاستشارات الهندسية

Company Name : شركة ت.ع.ل

Project : Electric Express Train - HSR From Qom To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

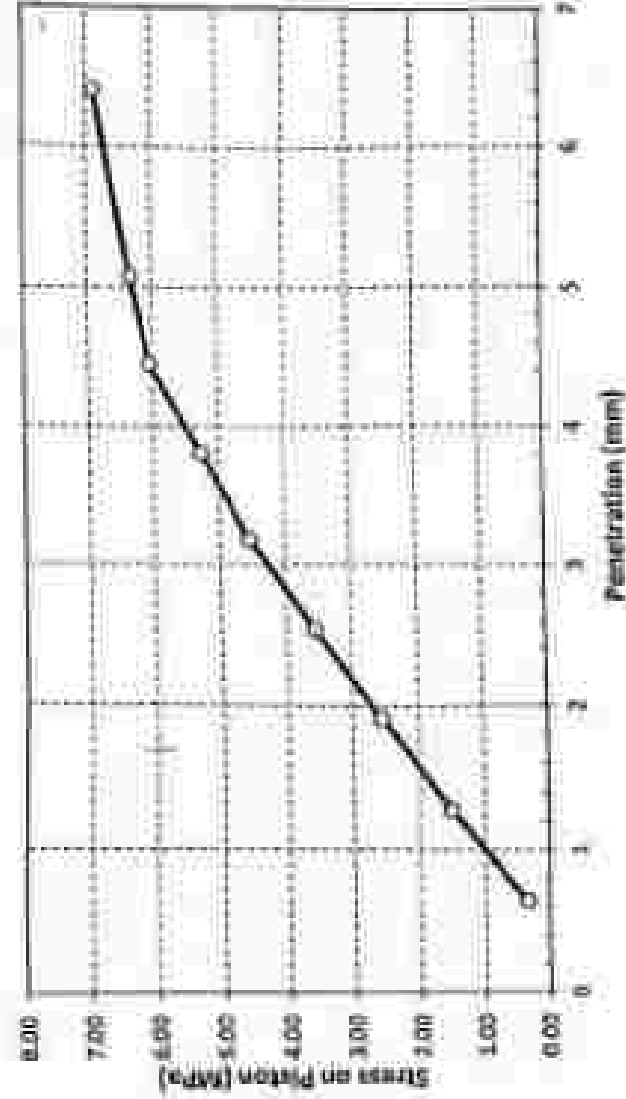
Delivery Date : 7/09/2023


Reporting Date : 11/09/2023

Reporting No. : 10-3

Load Penetration Curve of CBR Test

ASTM D-1553



Signature: 
مهندس
مكتبية معامل الاستشارات الهندسية
ت.ع.ل
7/09/2023

3-EI Nader El Attas Street
Zamalek, Cairo
Tel: 00202031111111

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م.ع.ل
مكتبية معامل
الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qons To Armanit
Testing Date : 14/09/2023
Soil type : Middle Embankment
Location : St From 641+420 to 641+540
Level : -2.5 M
Report No. : 62

Compaction test by using Sand - Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gmf/cm ³	Moisture Content %	Dry Density (gms/cm ³)	Degree of Compaction (%)	Acceptance
1	641+445	1418	2.29	6.4	2.15	97.8%	Comply
2	641+475	1698	2.24	6	2.12	96.1%	Comply
3	641+495	1404	2.20	6.4	2.07	94.2%	Comply
4	641+525	1058	2.22	6	2.09	95.1%	Comply

Degree of compaction based on proctor test given AC

Max. dry density = 2.19 g/cm³

At optimum moisture content = 6.4 %

Signature

Signature
مكتب محاسن الإستشارات الهندسية
شركة الأهلي
الرياض - 11564 - 999 - 999
البريد الإلكتروني : info@cel.com.sa

J E Mousa El Abbadi Street
Zagazig, Cairo
Toll Free 27507220 - 27507221



المقر الرئيسي
القاهرة - مصر
الهاتف : 27507220 - 27507221

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب محاسب الاستشارات الهندسية
10410 10410 - 10410 10410
10410 10410 - 10410 10410

Youssef El-Masry
Cairo, Egypt
10410 10410 - 10410 10410

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CEL

Consulting Engineering Division & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة النقيس

Project : Electric Express Train - HSR From Qous To Armut

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M.)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	3/4	84.4
12.50	1/2	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Signature/موقع المهندس
Date/تاريخ: 12/09/2023
By/من قبل: [Signature]

3 Elm St. El Alton State
Tennessee, USA

TAC

دار محمد المكي
بغداد - العراق

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 F= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than: Sieve Size 75 μ m (No.200)	9.0

Signature: *[Signature]*
Name: Dr. Mohamed El-Agnaf
Title: Head of Laboratory
Date: 12/09/2023
Place: Cairo, Egypt

Dr. Mohamed El-Agnaf
Cairo, Egypt
Tel: (011) 27545311 - 27545310

IAS
Accreditation

إدارة الجودة
إدارة البيئة
إدارة السلامة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature *[Signature]*
2023-09-12 12:00:00
2023-09-12 12:00:00

100 Mohd E Abbas Ghani
Zamalek, Cairo
Tel: 011 27711727 - 27711700

IAS
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2023-09-12
2023-09-12
2023-09-12 12:00:00

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Consulting Engineering Bureau & Laboratories
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Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

CEL
Signature
Date: 12/09/2023
By: [Signature]
For: [Signature]

3 Elmoad E-Moad Street
Zakaria, Cairo
Tel: 011-2766173 - 2765363

IAS
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مركز خدمات
البناء
القاهرة - مصر
011-2766173 - 2765363

شركة الألبان : **Company Name**

Project : Electric Express Train - HSR From Qowr To Armand -

Location
: ST:641+400 E=492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment (0.0 M)

Delivery Date : 08/09/2013

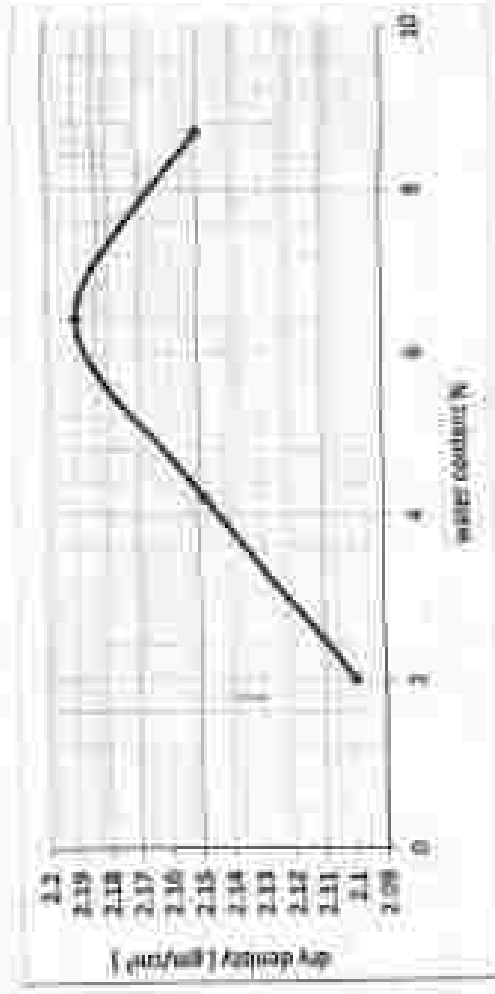
Reporting Date : 12/09/2023

Reporting No. : 10-1

Moisture – Density relation of soil

Test result (Modified predictor test)

4574-1-57



- Max dry density (g/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: corrie h

100% Satisfaction Guarantee

一、

3. *Pharmaceutical industry*

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1

DOI: 10.1002/for

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INSTITUTE FOR ADVANCED STUDIES

1. *What is the purpose of the study?*

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Arment

Location

: ST:641+400 E= 492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1553

CBR Results	penetration		stress on piston (Mpa)
	mm	Inch	
At 0.3 inch (7.62 mm) penetration	0.64	0.025	0.36
	1.27	0.050	1.52
	1.91	0.075	2.59
	2.54	0.100	3.59
	3.18	0.125	4.54
	3.81	0.150	5.33
	4.45	0.175	6.09
	5.08	0.200	6.49
	6.35	0.250	6.92
CBR Results	Stress (Mpa)		CBR 100 %
	% Value	Sample results	
	6.90	3.59	52 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 gm /cm³
At = 6.4 % optimum water content.
- 3- Sample tested 4.50 Kg.

4- CBR is 10 for mid&bottom embankments according project spec page No 35.
Signature: 
211-999-5311
1 E-Mail: info@cel-lab.com
Dzaker, Giza
Red Fax: 27304217 - 2730303

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الإستشارات الهندسية

Company Name : شركة الذخبي

Project

: Electric Express Train - HSR From Qous To Arment

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

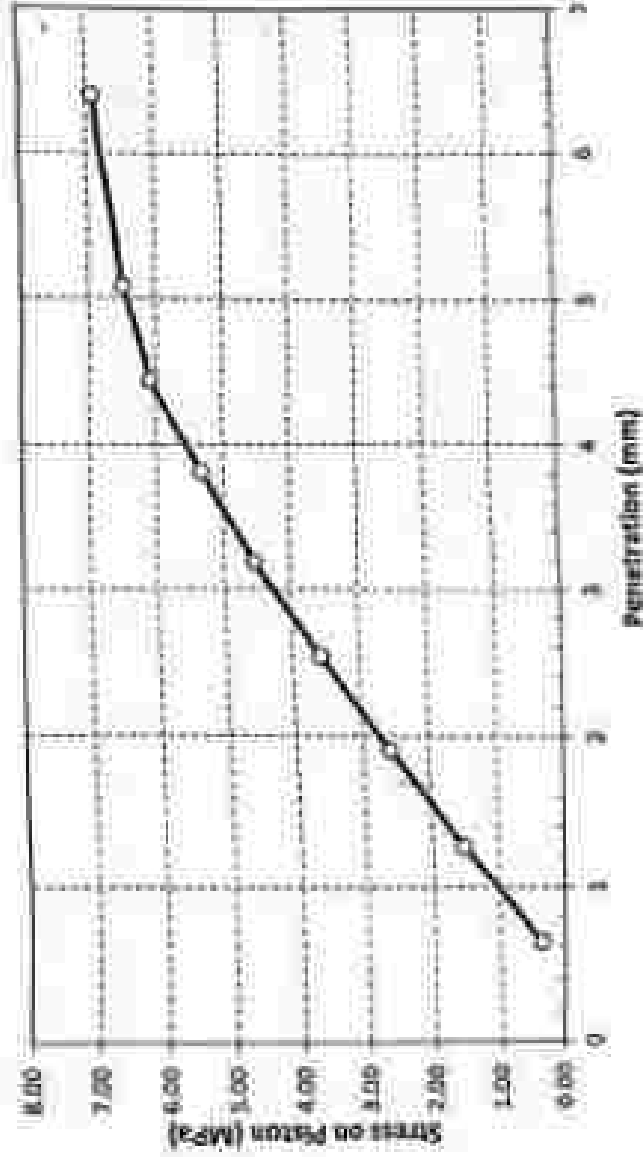
: 12/09/2023

Reporting No.

: 10-4

Load Penetration Curve of CBR Test

ASTM D-1583



Signature

Signature of Engineer
CEL
Consulting Engineering Bureau & Laboratories
No. 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 2681, 2682, 2683, 2684, 2685, 2686, 2687, 2688, 2689, 2690, 2691, 2692, 2693, 2694, 2695, 2696, 2697, 2698, 2699, 2700, 2701, 2702, 2703, 2704, 2705, 2706, 2707, 2708, 2709, 2710, 2711, 2712, 2713, 2714, 2715, 2716, 2717, 2718, 2719, 2720, 2721, 2722, 2723, 2724, 2725, 2726, 2727, 2728, 2729, 2730, 2731, 2732, 2733, 2734, 2735, 2736, 2737, 2738, 2739, 2740, 2741, 2742, 2743, 2744, 2745, 2746, 2747, 2748, 2749, 2750, 2751, 2752, 2753, 2754, 2755, 2756, 2757, 2758, 2759, 2760, 2761, 2762, 2763, 2764, 2765, 2766, 2767, 2768, 2769, 2770, 2771, 2772, 2773, 2774, 2775, 2776, 2777, 2778, 2779, 2780, 2781, 2782, 2783, 2784, 2785, 2786, 2787, 2788, 2789, 2790, 2791, 2792, 2793, 2794, 2795, 2796, 2797, 2798, 2799, 2800, 2801, 2802, 2803, 2804, 2805, 2806, 2807, 2808, 2809, 2810, 2811, 2812, 2813, 2814, 2815, 2816, 2817, 2818, 2819, 2820, 2821, 2822, 2823, 2824, 2825, 2826, 2827, 2828, 2829, 2830, 2831, 2832, 2833, 2834, 2835, 2836, 2837, 2838, 2839, 2840, 2841, 2842, 2843, 2844, 2845, 2846, 2847, 2848, 2849, 2850, 2851, 2852, 2853, 2854, 2855, 2856, 2857, 2858, 2859, 2860, 2861, 2862, 2863, 2864, 2865, 2866, 2867, 2868, 2869, 2870, 2871, 2872, 2873, 2874, 2875, 2876, 2877, 2878, 2879, 2880, 2881, 2882, 2883, 2884, 2885, 2886, 2887, 2888, 2889, 2890, 2891, 2892, 2893, 2894, 2895, 2896, 2897, 2898, 2899, 2900, 2901, 2902, 2903, 2904, 2905, 2906, 2907, 2908, 2909, 2910, 2911, 2912, 2913, 2914, 2915, 2916, 2917, 2918, 2919, 2920, 2921, 2922, 2923, 2924, 2925, 2926, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 2938, 2939, 2940, 2941, 2942, 2943, 2944, 2945, 2946, 2947, 2948, 2949, 2950, 2951, 2952, 2953, 2954, 2955, 2956, 2957, 2958, 2959, 2960, 2961, 2962, 2963, 2964, 2965, 2966, 2967, 2968, 2969, 2970, 2971, 2972, 2973, 2974, 2975, 2976, 2977, 2978, 2979, 2980, 2981, 2982, 2983, 2984, 2985, 2986, 2987, 2988, 2989, 2990, 2991, 2992, 2993, 2994, 2995, 2996, 2997, 2998, 2999, 3000, 3001, 3002, 3003, 3004, 3005, 3006, 3007, 3008, 3009, 3010, 3011, 3012, 3013, 3014, 3015, 3016, 3017, 3018, 3019, 3020, 3021, 3022, 3023, 3024, 3025, 3026, 3027, 3028, 3029, 3030, 3031, 3032, 3033, 3034, 3035, 3036, 3037, 3038, 3039, 3040, 3041, 3042, 3043, 3044, 3045, 3046, 3047, 3048, 3049, 3050, 3051, 3052, 3053, 3054, 3055, 3056, 3057, 3058, 3059, 3060, 3061, 3062, 3063, 3064, 3065, 3066, 3067, 3068, 3069, 3070, 3071, 3072, 3073, 3074, 3075, 3076, 3077, 3078, 3079, 3080, 3081, 3082, 3083, 3084, 3085, 3086, 3087, 3088, 3089, 3090, 3091, 3092, 3093, 3094, 3095, 3096, 3097, 3098, 3099, 3100, 3101, 3102, 3103, 3104, 3105, 3106, 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3771, 3772, 3773, 3774, 3775, 3776, 3777, 3778, 3779, 3780, 3781, 3782, 3783, 3784, 3785, 3786, 3787, 3788, 3789, 3790, 3791, 3792, 3793, 3794, 3795, 3796, 3797, 3798, 3799, 3800, 3801, 3802, 3803, 3804, 3805, 3806, 3807, 3808, 3809, 3810, 3811, 3812, 3813, 3814, 3815, 3816, 3817, 3818, 3819, 3820, 3821, 3822, 3823, 3824, 3825, 3826, 3827, 3828, 3829, 3830, 3831, 3832, 3833, 3834, 3835, 3836, 3837, 3838, 3839, 3840, 3841, 3842, 3843, 3844, 3845, 3846, 3847, 3848, 3849, 3850, 3851, 3852, 3853, 3854, 3855, 3856, 3857, 3858, 3859, 3860, 3861, 3862, 3863, 3864, 3865, 3866, 3867, 3868, 3869, 3870, 3871, 3872, 3873, 3874, 3875, 3876, 3877, 3878, 3879, 3880, 3881, 3882, 3883, 3884, 3885, 3886, 3887, 3888, 3889, 3890, 3891, 3892, 3893, 3894, 3895, 3896, 3897, 3898, 3899, 3900, 3901, 3902, 3903, 3904, 3905, 3906, 3907, 3908, 3909, 3910, 3911, 3912, 3913, 3914, 3915, 3916, 3917, 3918, 3919, 3920, 3921, 3922, 3923, 3924, 3925, 3926, 3927, 3928, 3929, 3930, 3931, 3932, 3933, 3934, 3935, 3936, 3937, 3938, 3939, 3940, 3941, 3942, 3943, 3944, 3945, 3946, 3947, 3948, 3949, 3950, 3951, 3952, 3953, 3954, 3955, 3956, 3957, 3958, 3959, 3960, 3961, 3962, 3963, 3964, 3965, 3

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 26/09/2023
Soil type : Middel Embankment
Location : St + From 641+300 To 641+420
Level : ± 1.75 M
Report No. : 72

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1803.5	2.20	5.4	2.08	95.1%	Comply
2	641+350	1559.0	2.22	5.8	2.10	95.7%	Comply
3	641+360	1559.7	2.22	5.5	2.10	95.9%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.6%	Comply
5	641+400	1543.1	2.21	6	2.08	95.2%	Comply
6	641+410	1388.9	2.23	6.4	2.10	95.8%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.10 gm/cm³

At optimum moisture content = 6.4 %

Signature

(Signature)
2023/09/26

Dr. Ehab E. Al-Hadi
Dr. Ehab E. Al-Hadi
2023/09/26

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REGISTERED
IN THE STATE OF CALIFORNIA

2023/09/26
2023/09/26
2023/09/26

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Signature :
Date : 12/09/2023

IAS
Institution

Signature :
Date : 12/09/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088. N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature:  

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

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1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 
Date: 12/09/2023

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

IAS
ACCREDITED

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

Company Name : شركة النخعي
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 08/09/2023
 Reporting Date : 12/09/2023
 Reporting No. : 10-4

**Results of liquid limit and plasticity index
 of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 
 12/09/2023
 12/09/2023

10/10/2023
 10/10/2023
 10/10/2023

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10/10/2023
 10/10/2023
 10/10/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 491410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /



A/Eng. E. Alattaf Elisei
Civilian Control
No. 104 20/05/2023 - 27/09/2023

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International Association of
Soil Testing Engineers

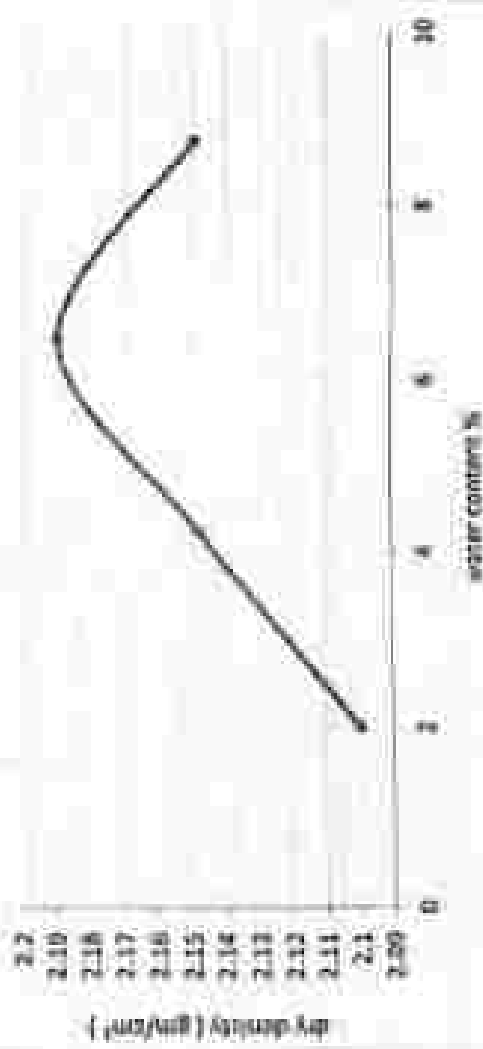
مركز اختبار التربة
المدنية
رقم 104 20/05/2023 - 27/09/2023

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

[Handwritten Signature]
Date: 12/09/2023
Time: 10:00 AM
Location: Lab 10-4

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.098 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CHB Result	Stress (Mpa)		CHB 100 %
At 0.1 inch (2.54 mm) penetration	So. Value	Sample results	51 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Superimpose load 4500 Kg

CHB > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Amr, Gen.
Lab No. (20073) - 220000



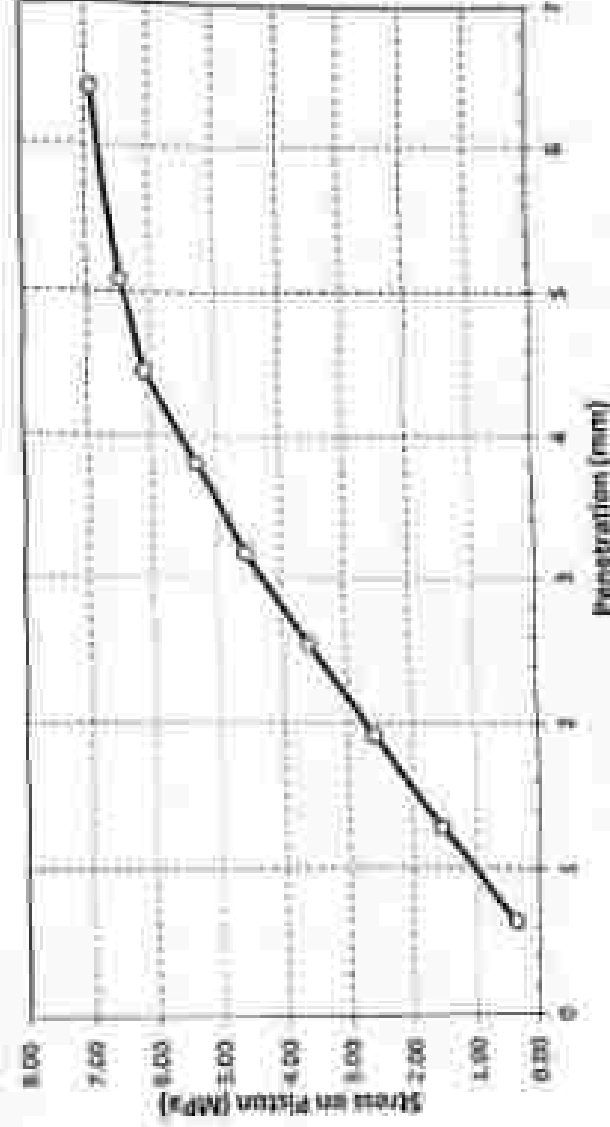
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مكتب محامل
مكتب محامل الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature : 
Date : 12/09/2023
By : 

AS-1000 (E-2000) Sheet
Drawing Date
12/09/2023 (12/09/2023)

IAS

12/09/2023
12/09/2023
12/09/2023

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : ± 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature

2023-09-27 15:00:00

2023-09-27 15:00:00

11-Elash B. Elash B.
Director, Civil
Tel: 011 2766231 - 2766260



مركز
مختبر
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CEL

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مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman ,

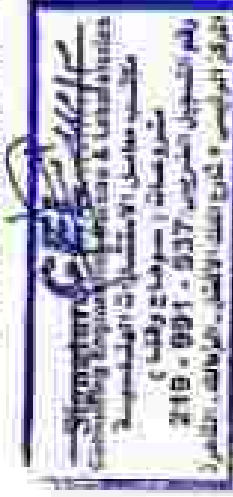
Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 6.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Youssef E. Hattou
Youssef E. Hattou
23/09/2023 10:10:00



Youssef E. Hattou
Youssef E. Hattou
23/09/2023 10:10:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبي

Project

: Electric Express Train – HSR From Qous To Armut

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 19/09/2023

Reporting Date

: 23/09/2023

Reporting No.

: 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



11/11/2023 11:11:11
CEL

TAS

11/11/2023 11:11:11
CEL

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



10/09/2023
Charles Cline
Upper Embankment 0.0 M

IAS
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مركز جودة
إدارة
مختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

CEL
Signature of the Engineer
مهندس محامى الاستشارات الهندسية
شركة الأهلي
219 - 004 - 537
بوم الشهاب، القاهرة، الجيزة، مصر

CE Mark E-4967867
Quality Control
Lab No. 2306211-230621

IAS
ACCREDITED
Testing Laboratory

إلى السيد المهندس
المهندس محامى الاستشارات الهندسية
شركة الأهلي

Company Name : شركة الأهلي
 Project : Electric Express Train – HSR From Qous To Armanat
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 19/09/2023
 Reporting Date : 23/09/2023
 Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	—	—
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

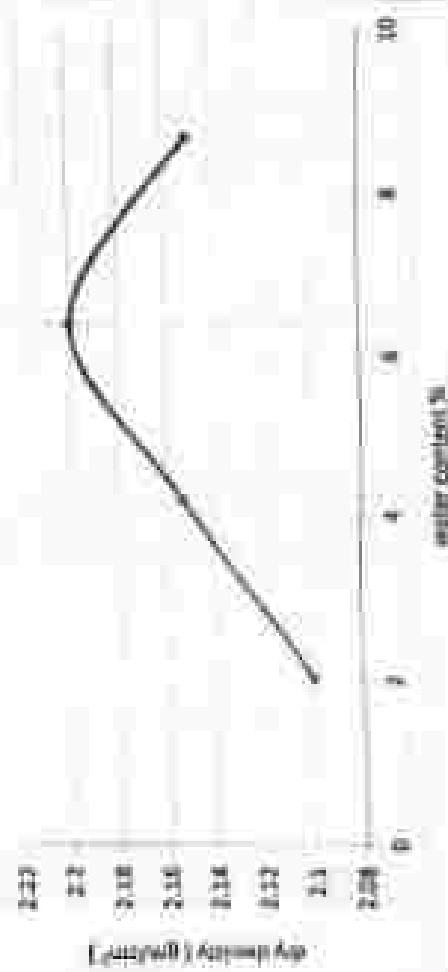
Signature: 
 Consulting Engineer & geotechnical
 مهندس استشاري جيوتكنيكي
 (مهندس استشاري جيوتكنيكي)
 رقم الترخيص المهني: 537 - 219
 رقم الترخيص في فرع الاستشارات الهندسية: 1

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST-641+400 E= 492410.088 N=2962759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.26
- Optimum moisture content % : 6.4 %

Signature **CEL**
مكتب دراسات الهندسية
شركة الأهلي
210 - 994 - 537
رقم التسجيل: 537
موقع العمل: طريق القاهرة - الجيزة

El Mostafa El Attar
Engineer, Civil
No. 10 - 537 - 994

IAS
REGISTERED

23/09/2023
موقع العمل: طريق القاهرة - الجيزة
No. 10 - 537 - 994

شركة الأهلي : **Company Name**

Project : Electric Express Train – IISR From Oons To Armmat

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Material
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value 6.90	Sample results 3.73	
At 0.1 inch (2.54 mm) penetration			54 %

2

1. Attached graph shows penetration resistance versus penetrometer magnitude.
2. The sample was compacted to dry density of $= 2.25 \text{ (gm./cm}^3\text{)}$
 $A_1 = 0.4 \%$ sodium water content.

Q. 2. *Explain the following:*

4. $\mathcal{C} \geq 10$ for $m_{\text{eff}} = 2.5$ at $\mu_{\text{eff}} = 100$ GeV.

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15

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2000

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2000

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only in relation to the

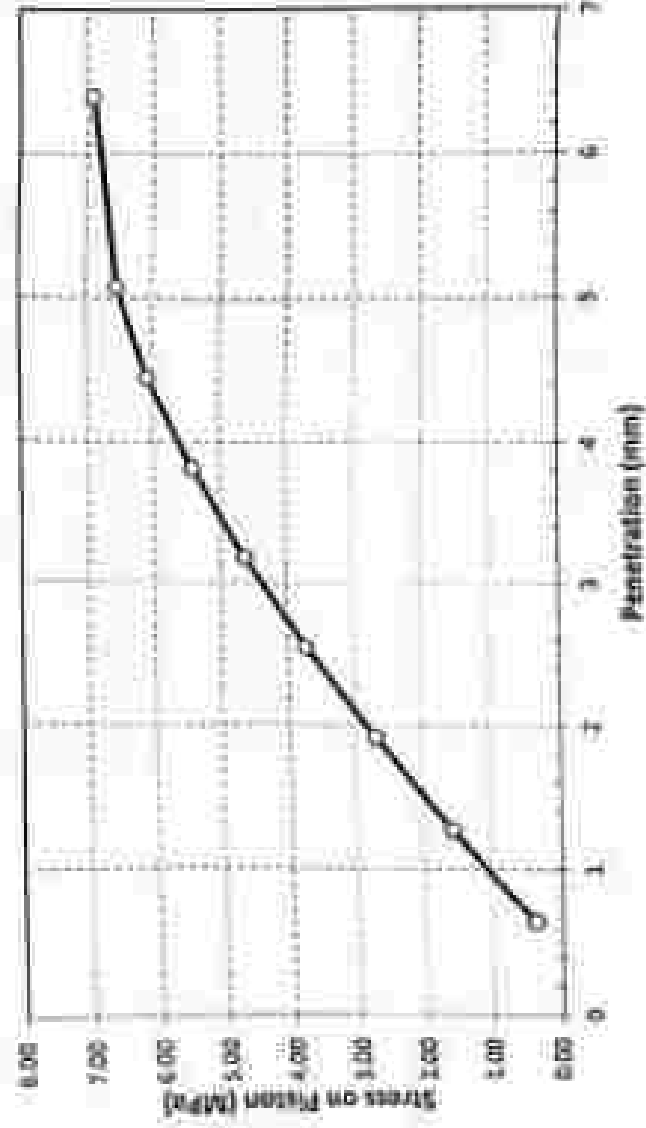
CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature: 
Dr. Hany E. Attia
219 - 091 - 537
219 - 091 - 537
219 - 091 - 537

Dr. Hany E. Attia
General Manager
Tel: 2796720 - 2796720

IAS
ACCREDITED
By the Ministry of Planning

Dr. Hany E. Attia
General Manager
Tel: 2796720 - 2796720

طريقة المصنوع

Project : Electric Express Train – HSR From Qous To Arman

Testing Date: 28/09/2023

Soil type

Location	St From 641+420 To 641+540
St From 641+420 To 641+540	

Level

Report No. : 7A

Compaction test by using Sand – Core Test Method

ASTM D-1059

RTest #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	641+410	1575.0	2.29	6.4	2.15	97.0%	Comply
2	641+435	1660.4	2.26	6	2.13	96.7%	Comply

Degree of compaction based on proctor test dated 4/1

Max. dry density = 2.30 g/cm³

Arbeitsgemeinschaften: [Arbeitsgemeinschaften](#) Content: 14 %

[illegible]

10

1000

IAS

CONCLUSION

100

[illegible]

Company Name : **شركة**

Project

Location
: ST:641+400 E= 492410,088 N=2862759,57

Type of sample: Soft Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. 10-5

Dear Gentleman,

Attached here with the delivered on 19/9/2023

This sample is representative for 5,000 M³

Participation in the study

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Dr. J. B. K.
GEL
Consulting Engineering Services & Laboratories
مكتب استشارات الهندسة والاختبارات
شماره تماس : ۳۵۷۶۸۱۰۲
۲۴۹ - ۵۹۱ - ۵۳۷
تهران ، خیابان ولیعصر ، پلاک ۱۰۰

1. *Chlorophyll a* (Chl *a*)

IAS

2000

Company Name : شركة الدقي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

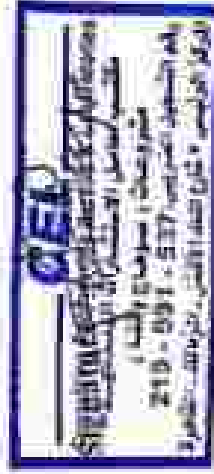
RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	¾	85.2
12.50	½	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



U. M. ALI, Manager
F. ALI, Engineer
T. ALI, Technician

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إدارة الجودة
إدارة البيئة
إدارة السلامة
إدارة الموارد البشرية

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project :

Electric Express Train - HSR From Qous To Armanf

Location :

ST:641+400 E= 492410.088 N=2862759.57

Type of sample :

Soil Embankment (Upper Embankment 0.0 M)

Delivery Date :

19/09/2023

Reporting Date :

23/09/2023


Reporting No. :

10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	-----	-----
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit				
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركة الأهلي : بوساطة وقفا
رقم التسجيل المهنى : 537 - 091
البريد الإلكتروني : cel@cel.net.eg - cel@cel.net

SENIOR E. Ahmed Sher

Engineer, Civil

DATE: 23/09/2023

IAS

إبراهيم أحمد شر

مهندس (مدني)

23/09/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arمنت

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Moisture - Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



• Max dry density (gm/cm³) : 2.20

• Optimum moisture content % : 6.4 %

Signature:
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركة الذهبى - صوفيا - ليبيا
رقم التسجيل المبرمج: 537 - 891 - 249
المقر الرئيسي: ليبيا - صوفيا - صوفيا

10-1000 E-1000 Qous

Qous, Libya

10-1000 E-1000 Qous

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شركة الذهبى
صوفيا - ليبيا
10-1000 E-1000 Qous

Consulting Engineering Bureau & Laboratories
200-221-2311, Jeddah 21560

شركة النسيج : Company Name

Project
: Electric Express Train – HSR From Qous To Arment

Location

Type of sample : Soil Embankment / Upper Embankment (0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2013

Reporting No. 1103

Test Results of California Bearing Ratio on Base Materials

penetration			stress on piston (Mpa)
mm	Inch		
0.64	0.025		0.38
1.27	0.050		1.57
1.91	0.075		2.69
2.54	0.100		3.73
3.18	0.125		4.64
3.81	0.150		5.43
4.45	0.175		6.09
5.08	0.200		6.54
6.35	0.250		6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St Value kN	Sample results	
At 0.1 inch (2.54 mm) penetration		3.73	54 %

10

1. Attached graph shows penetration resistance versus penetration magnitude.
2. The sample was compacted to dry density of $\approx 2.20 \text{ (gm/cc)}$
 $A_1 = 6.4\%$ optimum water content

A1-6.4 "6" and "more" number comparison

1. *Callitriche* sp.

Stacy L. Smith

1339

215-991-5300

[illegible][illegible]

1000

IAS

1. *What is the purpose of this study?*

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات والهندسة

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qoms To Armand

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

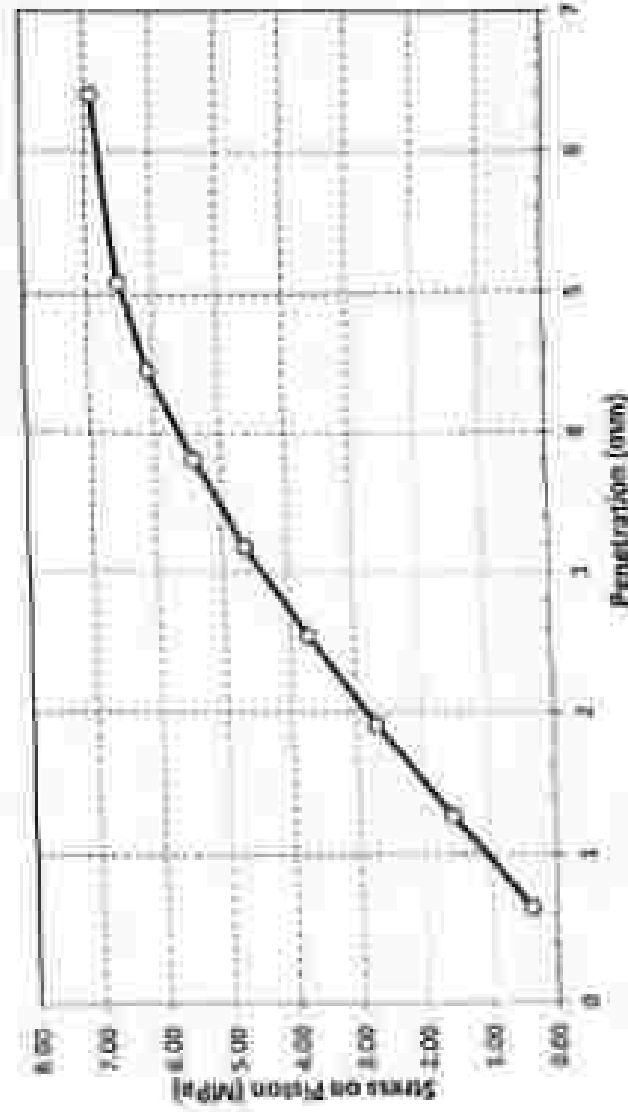
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



CEL
Consulting Engineering Bureau & Laboratories
شركة الأهلي
219 - 091 - 337
رقم تسجيل الهندسة
مركز الترخيص - شعبة هندسة الطرق والجسور

U. Mostafa, Eng.
2010a, GPR
Lab No. 2010a, GPR

IAS
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To ISO 9001

مركز الترخيص
شعبة هندسة الطرق والجسور
رقم تسجيل الهندسة

Scanned with CamScanner

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman,

Attached here with the delivered on 19/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1853

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
210 - 994 - 537
رقم التسجيل المخصص : 145 - 146 - 147 - 148 - 149 - 150

10 Mark F. Al-Ham
Director Gen
Cell No. 210-994-537

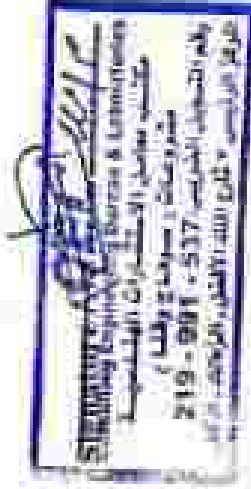
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مركز الاعتماد
International
Accreditation
Authority

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
15	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1

CEL
Consulting Engineering Bureau & Laboratories
Signature: *[Signature]*
شركة الأهلي
210 - 094 - 537
رقم التسجيل المرفوعة 537 - 094 - 210
القرار رقم 537 - 094 - 210

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 20622 276307

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International Accreditation Service

إبراهيم عيسى
إبراهيم عيسى
2062220622 276307

CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST1641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

CEL
Consulting Engineering Bureau & Laboratories
Signature: [Signature] Date: 23/09/2023
مكتب دراسات الاستشارات الهندسية
219 - 994 - 937
رقم التسجيل المهنى: 2014/2015 - 2016/2017
الهيئة العامة للغرفة التجارية بالقاهرة

Dr. Mervat E. El-Dokki
م. مervat E. El-Dokki

ITAC

Dr. Mervat E. El-Dokki
م. مervat E. El-Dokki

Company Name : شركة الذهب
 Project : Electric Express Train – HSR From Qous To Armanit
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 19/09/2023
 Reporting Date : 23/09/2023
 Reporting No. : 10-5

Soil Classification

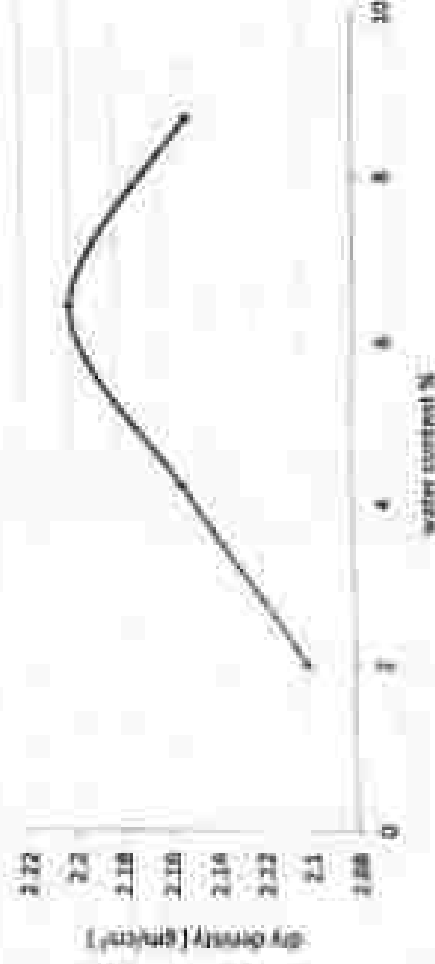
TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-d)
2.00 mm (No.10)	41.5	Max 50 %	---	---
0.425 mm (No. 40)	25.2	Max 20 %	Max 50 %	---
0.075 mm (No. 200)	.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	---	---	---	---
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum water content (%) : 6.4 %

Signature
Consulting Engineering Bureau & Laboratories
شركة الأهلي
رقم التسجيل المهنى: 219 - 984 - 527
المركز الرئيسي: شارع النيل - القاهرة

10/10/2023
Zaidan Gills
10/10/2023 23:00:00

IAS
Institution
of Architects

10/10/2023
23:00:00
10/10/2023 23:00:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الطهي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0,0 M)

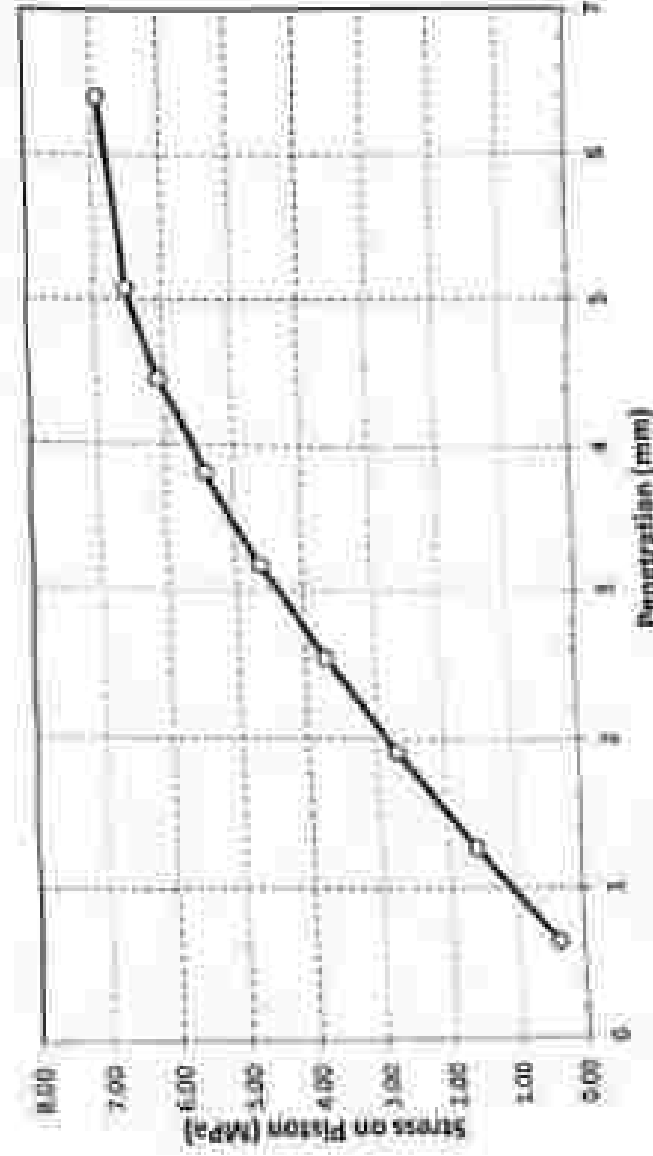
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature **CEL**
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
شارع صلاح / حيويحيات واديا
2119 - 0591 - 037
رقم التسجيل المبرمج : 037
المرکز الرئيسي : شارع الملك فيصل - الرياض - 11564

(Printed) E. Alkhatib
Checked: / /

IAS

إبراهيم الخياط
23/09/2023
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanit
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : St + From 641+200 To 641+300
Level : ± 1.25 M
Report No. : 71

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+230	1768.9	2.23	6	2.11	96.2%	Comply
2	641+260	1716.7	2.23	6.4	2.11	96.4%	Comply
3	641+290	1770.8	2.23	6.4	2.09	95.6%	Comply

Degree of compaction based on proctor test dated At:

Max. dry density = 2.15 gm/cm³

At optimum moisture content = 6.4 %

Signature /

[Handwritten Signature]

El Mostafa El Agha Elsay
Geotech. Eng.
Tel: 011 2656231 - 2656000

IAS
ASACREDITED
ACCREDITED

الهيئة العامة
للإسنادات
والاعتمادات
011 2656231 - 2656000

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qam To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (DN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
The Representative of the Client
Date: 12/09/2023
Name: Mr. (Name of the Representative)

VE: Mr. F. Al-Jarrah
For: Mr. (Name of the Client)
Cell No: 0096711111111111

IAS
ACCREDITED

0096711111111111
0096711111111111
0096711111111111

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة الأهلي
Project : Electric Express Train - HSM From Ques To Armat
Testing Date : 09 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+850 To 639+000
Level : -4 M
Report No. : 101

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	638+900	1532.6	2.25	5.8	2.13	95.4%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature / 



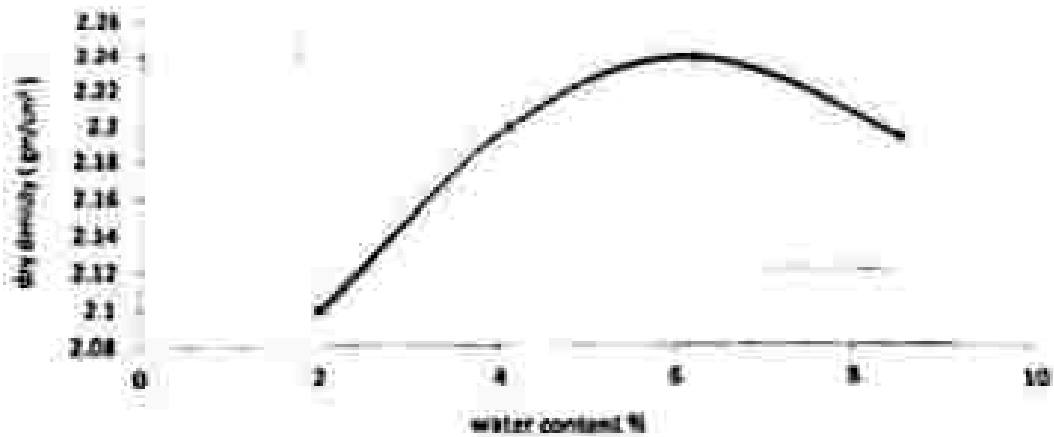
10, Mada F-Ahly Street
Zaraka, Cairo
Tel/Fax 210022 2101305



مكتب استشارات الهندسة والاختبارات
بureau of Consulting Engineering and Laboratories
31/10/2023

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qom To Arvand
Location : ST: 639+000 E=32°54'25.6" N=29°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.23
- Optimum moisture content % : 6.4 %

Signature / 



3 El Mada E Alda Stour
Zamalek, Cairo
Tel & Fax: 27367231 - 27367463



الهيئة العامة للغرفة التجارية
القاهرة
رقم الترخيص: 219/921-437

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبارات

Company Name : شركة فاهي
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 09 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+800 To 639+000
Level : +4 M
Report No. : 101

Compaction test by using Sand - Cone Test Method
ASTM D- 1555

Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Ac
638+900	1532.6	2.25	5.8	2.13	95.4%	1

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature / 



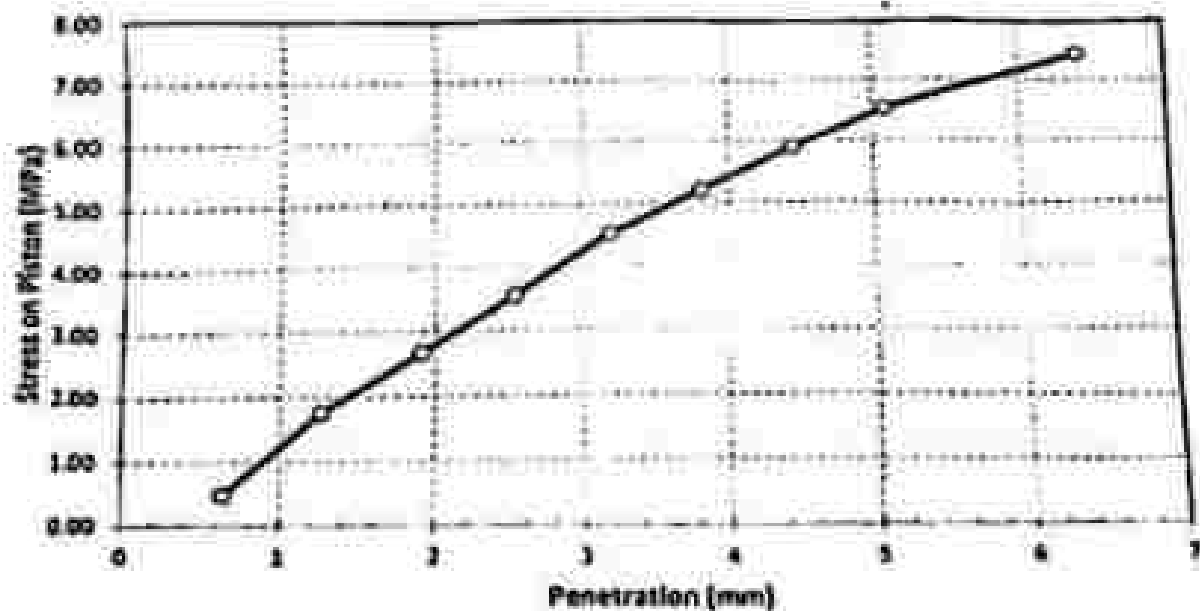
Dr. Muneer Al-Sayid
Technical Cam
NA Fax 2726723 2726563



مكتب استشارات
الهندسة والاختبارات
شركة فاهي
الرياض - المملكة العربية السعودية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / (أحمد) /

3 D-Malek El-Ahmed Street
Zakaria, Cairo
Tel & Fax: 27362231 - 27362230



مختبر محاسن الاستشارات والمختبرات
مكتب محاسن الاستشارات والمختبرات
مكتب محاسن الاستشارات والمختبرات

CELConsulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 18/10/2023
 Reporting Date : 22/10/2023
 Reporting No. : 08-11

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.5
37.5	1.5	94.3
25	1	89.4
19	3/4	84.8
12.5	1/2	70.9
9.5	3/8	66.7
4.75	4	48.0
2.00	10	42.1
0.425	40	27.5

Signature /



3 El Matak El Akad Green
 Giza, Cairo
 Tel/Fax: 2134723 - 2134763



رقم الترخيص: 213
 رقم الترخيص: 437
 رقم الترخيص: 437

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Scanned with CamScanner

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والمختبرات

Company Name : شركة قاضي
Project : Electric Express Train - JISR From Ques To Arment
Testing Date : 12 / 11 / 2023
Soil type : Middle Embankment
Location : M From K38+720 To K38+850
Level : -4 M
Report No. : 102

Compaction test by using Sand - Cone Test Method
ASTM D- 1559

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	638+760	1488.9	2.32	5.8	2.20	98.5%	Comply
2	638+810	1556.9	2.29	5.8	2.16	97.1%	Comply
3	638+860	1581.9	2.26	5.8	2.14	95.8%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density = 2.23 gm/cm³

At optimum moisture content = 6.4 %

Signature



15, Main Street,
Zurich, Can.
Tel/Fax: 206722 206723

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ISO 9001:2015

15, Main Street,
Zurich, Can.
Tel/Fax: 206722 206723

Company Name : شركة قاضي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 639+000 E=32°54'25.6" N=25°53'59.1"
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 08-11

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	10.9

Signature / **ع نسامة**



El Malek El Aloul Street
Nasr City, Cairo
Tel & Fax : 2736723 - 2736363



المهندس
ع نسامة

2023-10-22 10:16:19

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Scanned with CamScanner

Company Name	: شركة تلامي
Project	: Electric Express Train - HSR From Qout To Armanat
Location	: ST: 639+000 E=32°54'25.6" N=29°53'59.1"
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 18/10/2023
Reporting Date	: 22/10/2023
Reporting No.	: 08-11

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	42.1	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	10.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / 



3 E Main E Main St
Zurich, Conn
Tel & Fax: 203-271-2700



الحمد لله الذي جعلنا من عباده المخلصين
والمخلصين من عباده المخلصين

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

[illegible]

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[illegible]

Company Name : شركة قاضي
Project : Electric Express Train - HSR From Ques To Arment
Testing Date : 12 / 11 / 2023
Soil type : Middle Embankment
Location : St From 638+000 To 638+100
Level : -4 M
Report No. : 103

**Compaction test by using Sand - Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gmv cm ³	Moisture Content %	Dry Density (gmv cm ³)	Degree of Compaction (%)	Accept
1	638+025	1495.8	2.32	5.8	2.19	98.2%	Com
2	638+050	1536.1	2.29	5.8	2.16	96.9%	Com
3	638+085	1612.5	2.25	5.8	2.12	95.2%	Com

Degree of compaction based on proctor test dated At

Max. dry density = 2.23 gmvcm³

At optimum moisture content = 6.4 %

Signature /


CEL
مكتب استشارات والهندسة
219 VET 437
مكتب استشارات والهندسة

SE Mark E-ALC
Zarqa, Carr
TAR No. 2736731 2736730

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الهندسة
مكتب استشارات
الهندسة

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Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qina To Aswan
Testing Date : 30 /10/2023
Soil type : Middle Embankment
Location : St. From 639+020 To 639+120
Level : - 5 M
Report No. : 97.2

**Compaction test by using Sand - Cone Test Method
ASTM D-1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	639+050	1531.9	2.30	5.8	2.17	98.3%	Comply
2	639+080	1520.1	2.28	5.8	2.15	97.4%	Comply
3	639+110	1381.3	2.25	5	2.15	97.1%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.21 gm/cm³

At optimum moisture content = 5.4 %

Signature /



Tel: 011 431 431
Fax: 011 431 431
Email: info@cel-eg.com



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Mark E Mail Street
Cairo City
11564 El Mark E Mail Street





مركز خدمات العملاء
البريد الإلكتروني
info@cel-eg.com

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	————	————
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	————
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	————	————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 


10/09/2023, 12/09/2023
CEL-001-001
CEL-001-001

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ISO 9001:2015

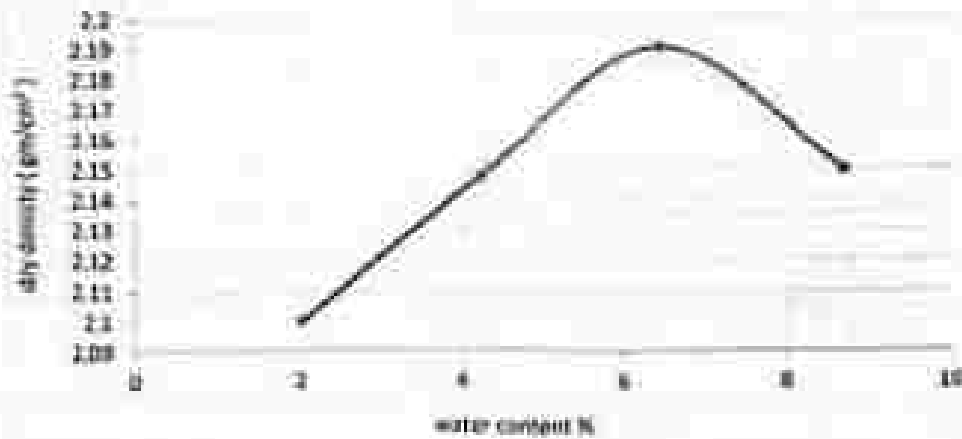
م.م. محمد العبد
م.م. محمد العبد
م.م. محمد العبد

CEL


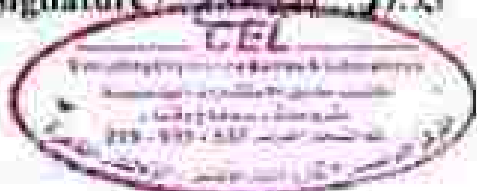
Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: 

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية
الرياض - 11561
الهاتف: 3397520 - 3397521
الفاكس: 3397522 - 3397523

S. E. Alkhatib & Alkhatib
Zaria, Giza
Tel/Fax: 3397520 - 3397521

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ASSOCIATION
OF STANDARDIZING
ORGANIZATIONS

م. ع. الخياط
الرياض - 11561
الهاتف: 3397520 - 3397521
الفاكس: 3397522 - 3397523

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

[Signature]
S. P. EL-SAYED
Director / Engineer
Tel: (011) 27600000 - 27600001



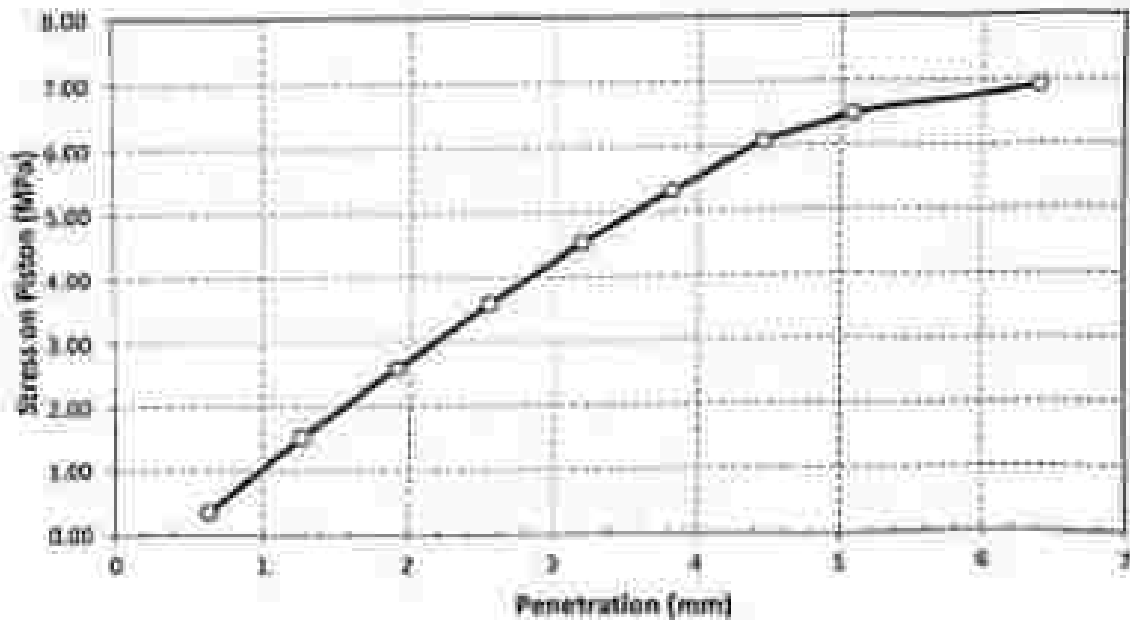
في المختبر
في الموقع
مكتب
مكتب

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 19-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature: *[Handwritten Signature]*
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
قوة القاهرة - مصر
2019 - 944 - 527
الهاتف: 011-25555555

15/ Mark E. Alaa Omer
Zurab, Cam
14/10/2023 22:45:48

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15/ Mark E. Alaa Omer
Zurab, Cam
14/10/2023 22:45:48

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armut
Testing Date : 25/09/2023
Soil type : Middle Embankment
Location : St + From 641+540 TO 641+760
Level : - 2.5 M
Report No. : 70

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

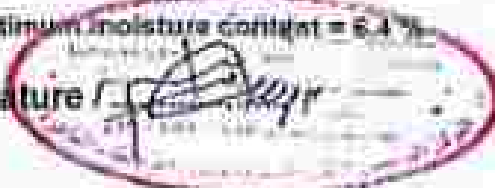
Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+620	1490	2.23	5.5	2.1	96.6%	Comply
2	641+670	1335	2.30	5.8	2.2	99.1%	Comply
3	641+699	1610	2.21	6.4	2.1	95.1%	Comply
4	641+705	1413	2.29	5.8	2.2	98.9%	Comply
5	641+730	1535	2.25	6	2.1	97.0%	Comply
6	641+750	1490	2.28	6.4	2.1	97.8%	Comply
7	641+765	1525	2.27	6	2.1	97.6%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.19 gm/cm³

At optimum moisture content = 6.4 %

Signature



E. Elmer Elmaghrabi
Engineer / Civil
Tel/Fax: 204023 - 273560

IAS
ACCREDITED
Testing Laboratory

إم. الماهر الماهر
مهندس / مدني
هاتف - فاكس : 204023 / 273560

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

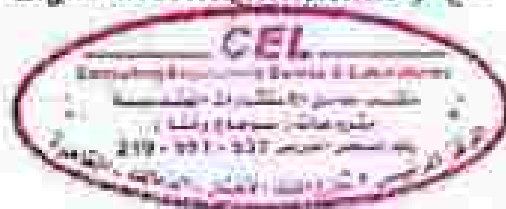
This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / ... (ع.ع.ال.ز) ع



1 E-Mark E. Al-Jalal
Zarqa, Jordan
Tel/Fax: 2279227 - 2279228


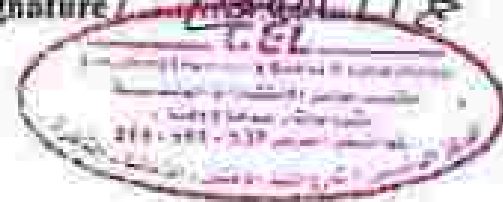


مركز اختبار
الزرقاء
الزرقاء - الأردن
2279227 - 2279228

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature 


111 Nahr El Jebel Street
Zakaria, Cairo
S.A.Fax 206623 2754399



أتمنى لكم النجاح
إيماناً بكم
فريق العمل

CEL

Consulting Engineering Bureau & Laboratories

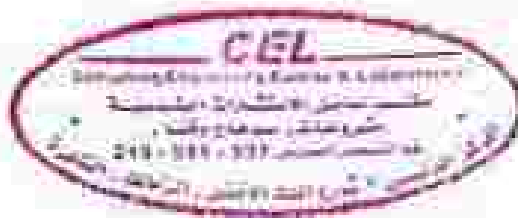
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9

Signature / 



3E Main E-Post Street
Zakaria, Cairo
S.A.Far 2076233 2076235



د. محمد عبد الله
المهندس - المهندس
المهندس (مهندس) / المهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
QOS - QOS - QOS
QOS - QOS - QOS

10-0410-088-57
QOS - QOS - QOS
QOS - QOS - QOS



QOS - QOS - QOS
QOS - QOS - QOS
QOS - QOS - QOS

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088. N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature:  

1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

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1E-1000 E-1000 (mm)
2E-1000 E-1000 (mm)
3E-1000 E-1000 (mm)

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 
Date: 12/09/2023

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

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Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011 2770573 - 011 2770574

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة النخعي

Project : Electric Express Train – HSR From Qous To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 

Signature

10/ Moud E. Alan Staff
Cairo, Egypt
0111 5555 1111

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CONFORMANCE

10/ Moud E. Alan Staff
Cairo, Egypt
0111 5555 1111

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 491410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /



A/Eng. E. Alani Filled
Checked /
14/09/2023/17:27/2023

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INTERNATIONAL ASSOCIATION OF
AGREEMENT

مركز اختبار المعايير
الاعتماد الدولي
14/09/2023/17:27/2023

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Armanat

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

: 12/09/2023

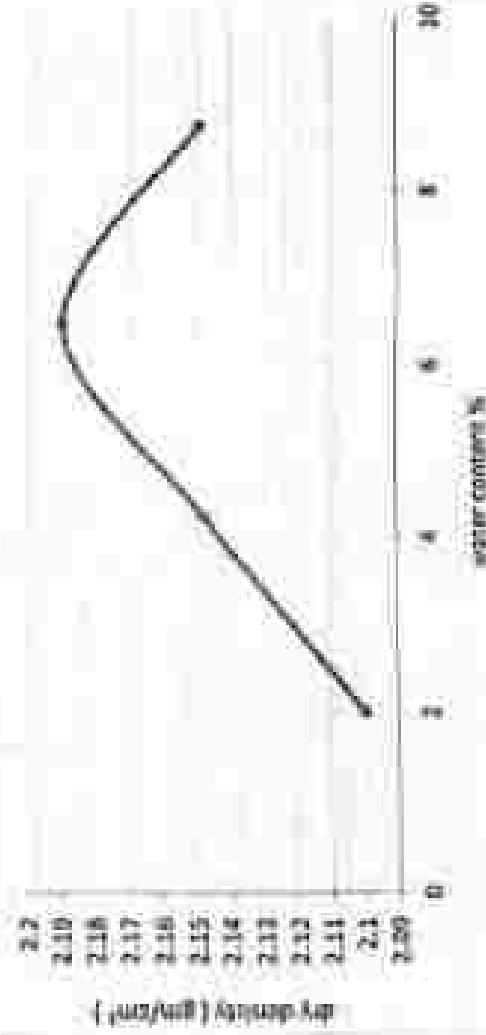
Reporting No.

: 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

[Handwritten Signature]
2023/09/12 14:00
2023/09/12 14:00

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanit

Location : ST:641+400 E= 492410.098 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Surrogate test 4.50 Kg

1. CAR > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Arabic, Chem.
Lab No. (20603) - (206003)



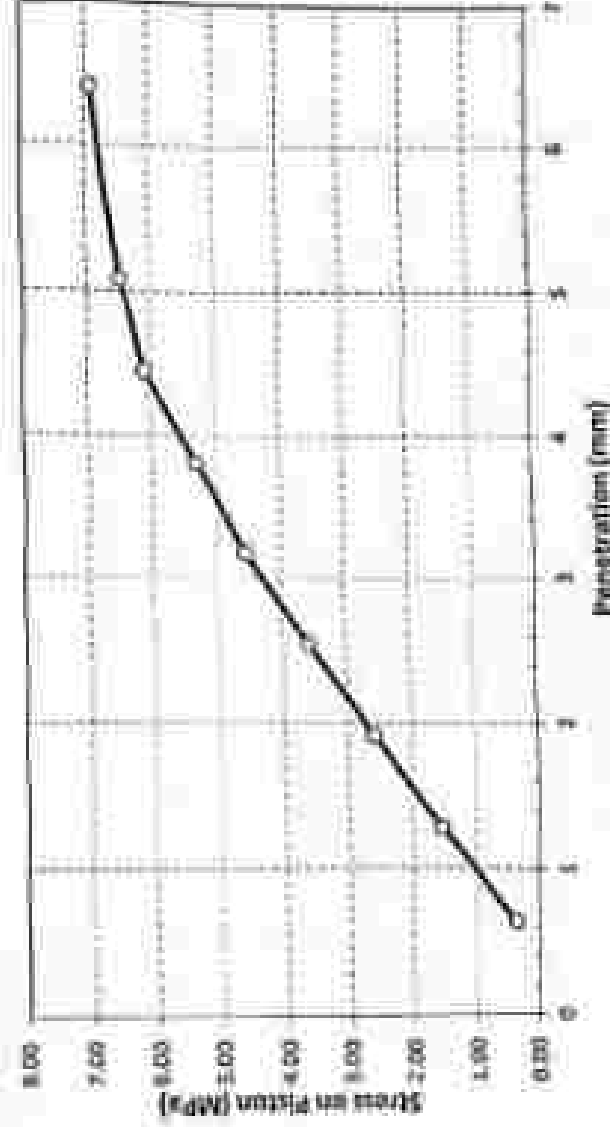
إيزي اس
الاعتماد
مكتب محامل الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature : 

El-Mahdy El-Ahly Shere
Engineer, Geotechnical
T: 0111 0000000000000000

IAS

0111 0000000000000000
0111 0000000000000000
0111 0000000000000000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : ± 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature

2023-09-27 15:00:00

2023-09-27 15:00:00

11-Elash B. Elash B.
Director, Civil
Tel: 011 2766231 - 2766260



مركز
مختبر
مختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman ,

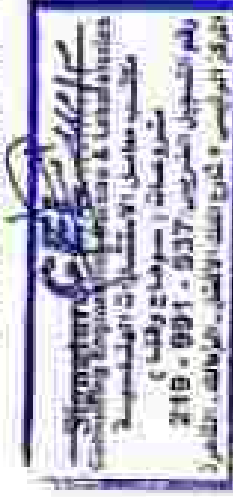
Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Youssef E. Hattou
Youssef E. Hattou
23/09/2023 10:10:00



Youssef E. Hattou
23/09/2023 10:10:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبي

Project

: Electric Express Train – HSR From Qous To Armut

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 19/09/2023

Reporting Date

: 23/09/2023

Reporting No.

: 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



10/09/2023
Charles Cline
Upper Embankment 0.0 M

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مركز جودة
إدارة
مختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

CEL
Signature of the Engineer
مهندس محامى الاستشارات الهندسية
شركة الأهلي
219 - 004 - 537
بوكا - 004 - 537
بوكا - 004 - 537

CE Mark E-400/1000
Quality Control
Lab No. 230621-1250001

IAS
ACCREDITED
Testing Laboratory

إلى مدير المشروع
مهندس محامى الاستشارات الهندسية
بوكا - 004 - 537

شركة الأبي : Company Name

Project

Location	ST	ST+400	E	E+492.410.088	N	N+2862.759.57
Location						

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date	19/09/2023
---------------	------------

Reporting Date : 23/09/2023

Reporting No. 10-5

Self-Correction

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-d)
2.00 mm (No. 10)	41.5	Max 50 %	—	—
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

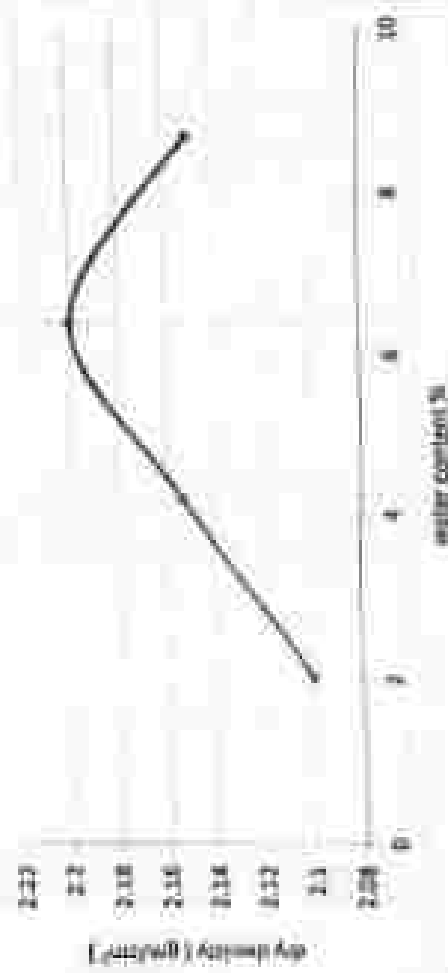
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CEL

Consulting Engineering Bureau & Laboratories
مكتب دراسات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST-641+400 E= 492410.088 N=2962759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (g/cm³) : 2.26
- Optimum moisture content % : 6.4 %

Signature **CEL**
مكتب دراسات الهندسية
شركة الأهلي
219 - 994 - 537
رقم التسجيل: 537 - 994 - 219
مركز التسجيل: 537 - 994 - 219

10/10/2023
2023/09/23
10/10/2023

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10/10/2023
2023/09/23
10/10/2023

شركة الأهلي : **Company Name**

Project : Electric Express Train – IISR From Oons To Armmat

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date: 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Material
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value 6.90	Sample results 3.73	
At 0.1 inch (2.54 mm) penetration			54 %

2

1. Attached graph shows penetration resistance versus penetrometer magnitude.
2. The sample was compacted to dry density of $= 2.25 \text{ (gm/ccm}^3\text{)}$
 $A_1 = 0.4\%$ sodium water content.

Q. 2. Explain the following:

4. $\mathcal{C} \geq 10$ for $m_{\text{eff}} = 2.5$ at $\mu_{\text{eff}} = 100$ GeV.

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15

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IAS
INTEGRATED ASSESSMENT SYSTEM

1. *Chlorophyll a* (Chl *a*)
 2. *Chlorophyll b* (Chl *b*)
 3. *Chlorophyll c* (Chl *c*)
 4. *Chlorophyll d* (Chl *d*)
 5. *Chlorophyll e* (Chl *e*)
 6. *Chlorophyll f* (Chl *f*)
 7. *Chlorophyll g* (Chl *g*)
 8. *Chlorophyll h* (Chl *h*)
 9. *Chlorophyll i* (Chl *i*)
 10. *Chlorophyll j* (Chl *j*)
 11. *Chlorophyll k* (Chl *k*)
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 15. *Chlorophyll o* (Chl *o*)
 16. *Chlorophyll p* (Chl *p*)
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 115. *Chlorophyll aiz* (Chl *aiz*)
 116. *Chlorophyll ajz* (Chl *ajz*)
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 118. *Chlorophyll alz* (Chl *alz*)
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 122. *Chlorophyll apz* (Chl *apz*)
 123. *Chlorophyll aqz* (Chl *aqz*)
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 132. *Chlorophyll ayz* (Chl *ayz*)
 133.

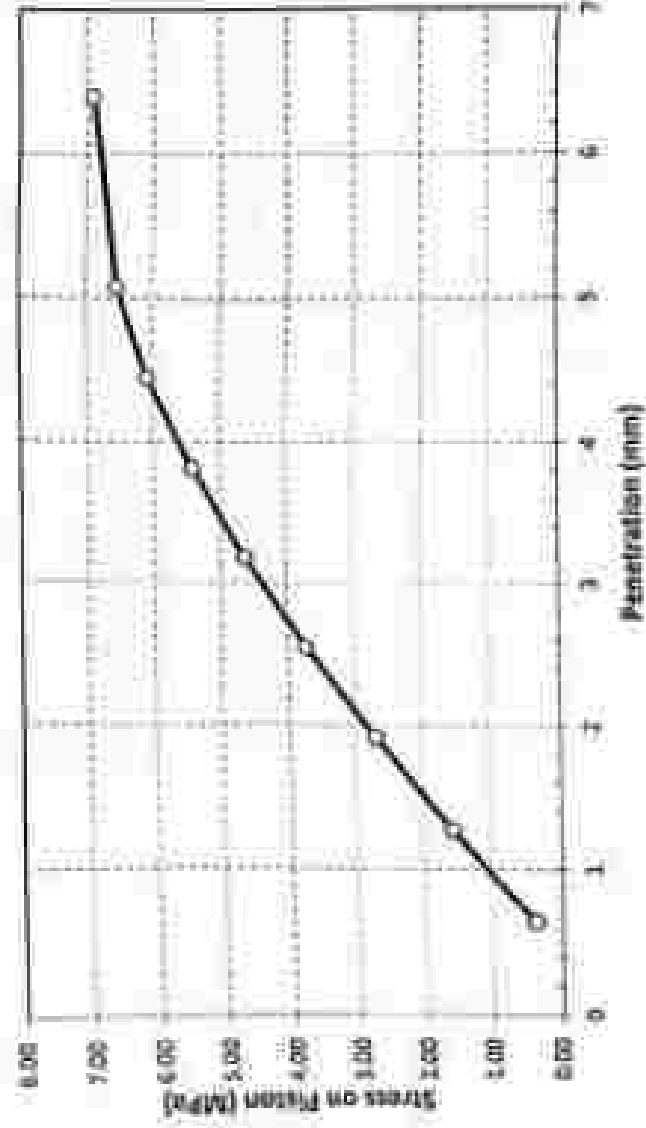
CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature:
Dr. Hany El Attia
219 - 091 - 537
219 - 091 - 537
219 - 091 - 537

Dr. Hany El Attia
General Manager
Tel: 2796720 - 2796720

IAS
ACCREDITED
By the Ministry of Planning

Dr. Hany El Attia
General Manager
Tel: 2796720 - 2796720

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاختبارات والمختبرات

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Armanat

Testing Date : 28/09/2023

Soil type : Middle Embankment

Location : St From 641+420 To 641+540

Level : ± 2 M

Report No. : 78

Compaction test by using Sand – Cone Test Method

ASTM D-1556

RTest #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	641+410	1575.0	2.23	6.4	2.11	97.0%	Comply
2	641+435	1660.4	2.26	6	2.13	96.7%	Comply

Degree of compaction based on proctor test dated At

(Max. dry density = 2.20 gm/cm³)

At optimum moisture content = 8.4 %

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طريق القاهرة - بنها - 219 - 537
بالم التجهيز المرفق 537 - 219 - 537
البريد الإلكتروني: info@cel-eg.com

10, Mark E. Abdel-Ghany

Engineer, Civil

Tel: 0111 4777777, 4777777

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10, Mark E. Abdel-Ghany
Engineer, Civil
Tel: 0111 4777777, 4777777

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مكتب دراسات الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armand

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Dear Gentleman,

Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5 000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Spec.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



(Signature)
Name
Title

IAS
REGISTERED

التمثيل
الاسم
الصفة

Company Name : شركة الدقي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	¾	85.2
12.50	½	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1





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مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
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Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10)	41.5	Max 50 %	-----	-----
0.425 mm (No. 40)	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	91	Max 15 %	Max 15 %	Max 15 %
Liquid Limit				
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

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شركة الأهلي : 537 - 091
رقم التسجيل المهنى : 537 - 091
البريد الإلكتروني : info@cel-eg.com

SENIOR E. Attia Sher

Senior Geotechnical

DATE: 23/09/2023

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إبراهيم التميمي
رئيس قسم الجيوتقني
23/09/2023

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arمنت

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 19/09/2023

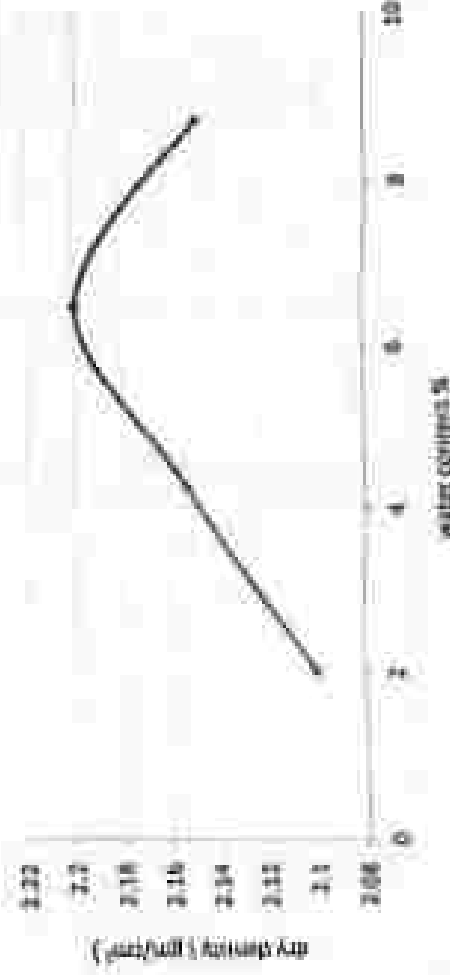
Reporting Date : 23/09/2023

Reporting No. : 10-5

Moisture - Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



• Max dry density (gm/cc) : 2.20

• Optimum moisture content % : 6.4 %

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رقم التسجيل المهنى: 537 - 891
المقر الدائى: ١٠٠٠ شارع النيل، القاهرة، الجيزة، مصر

10-1000 E-1000 Qous

Engineer's Name

10-1000 E-1000 Qous

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مكتب معامل الاستشارات الهندسية
10-1000 E-1000 Qous

Consulting Engineering Bureau & Laboratories
200-221 31st Avenue, Suite 200

شركة الخشب : Company Name :

Project Electric Express Train – HSR From Qous To Arment

Location
: ST:641+400 E=492410.088 N=7862759.57

Type of sample : Soil Embankment / Upper Embankment (0.0 M)

Delivery Date : 19/09/2023

Renewal Date : 23/09/2023

Reporting No. 1103

Test Results of California Bearing Ratio on Base Materials

ASTM D 1583

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	St Value kN	Sample results	
At 0.1 inch (2.54 mm) penetration	3.73	54 %	

10

1. Attached graph shows penetration resistance versus penetration magnitude.
2. The sample was compacted to dry density of $\approx 2.28(\text{gm/ccm}^3)$
 $A_1 = 6.4\%$ optimum water content

A1-6.4 "6" and "10mm" number corrected

1. *Callitriche* sp.

Stacy L. Smith

1339

215-991-5300

Author's address: Department of Mathematics, University of California, San Diego, La Jolla, CA 92037, U.S.A.
E-mail: shashikanth@ucsd.edu

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1. *What is the purpose of this study?*

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Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qoms To Armand

Location : ST:641+400 E= 492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

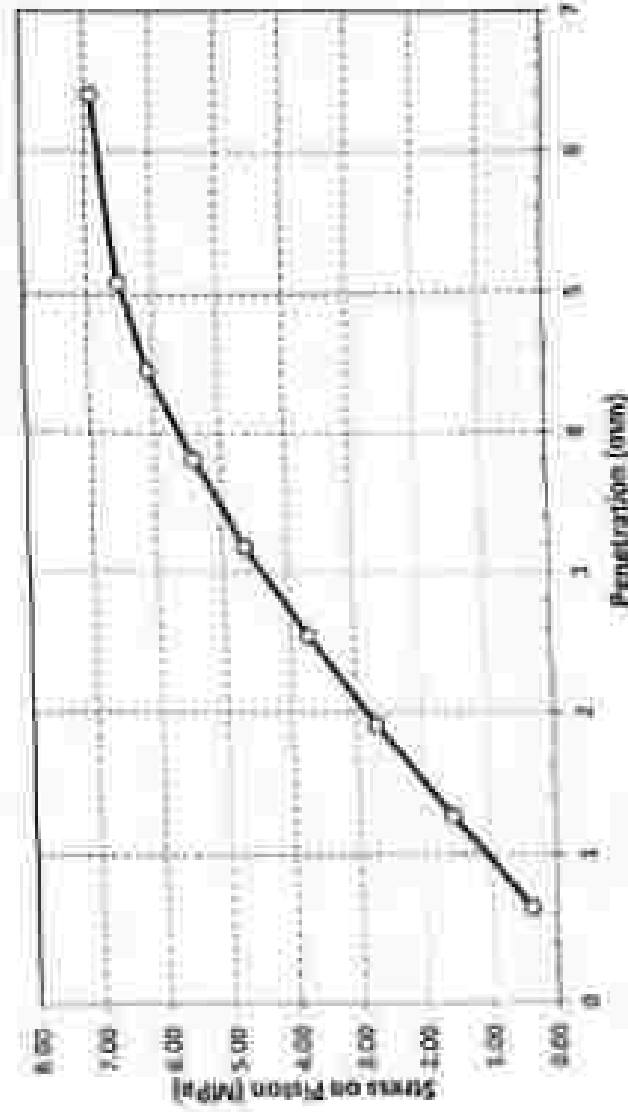
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Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



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الرجوع إلى الموقع الإلكتروني: www.ahli.com

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2023/09/23 (09:10:00)

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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
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Type of sample : Soil Embankment (Upper Embankment 0.0 M)
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Reporting No. : 10-5

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Attached here with the delivered on 19/9/2023

This sample is representative for 5.000 M³

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3. Liquid limits and plasticity Index of soil according to ASTM D-4318.
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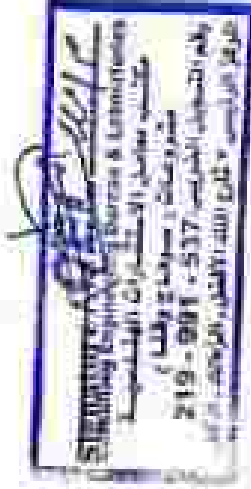
Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
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رقم التسجيل المهنى: 145 - 146 - 147 - 148 - 149 - 150 - 151 - 152 - 153 - 154 - 155 - 156 - 157 - 158 - 159 - 160 - 161 - 162 - 163 - 164 - 165 - 166 - 167 - 168 - 169 - 170 - 171 - 172 - 173 - 174 - 175 - 176 - 177 - 178 - 179 - 180 - 181 - 182 - 183 - 184 - 185 - 186 - 187 - 188 - 189 - 190 - 191 - 192 - 193 - 194 - 195 - 196 - 197 - 198 - 199 - 200 - 201 - 202 - 203 - 204 - 205 - 206 - 207 - 208 - 209 - 210 - 211 - 212 - 213 - 214 - 215 - 216 - 217 - 218 - 219 - 220 - 221 - 222 - 223 - 224 - 225 - 226 - 227 - 228 - 229 - 230 - 231 - 232 - 233 - 234 - 235 - 236 - 237 - 238 - 239 - 240 - 241 - 242 - 243 - 244 - 245 - 246 - 247 - 248 - 249 - 250 - 251 - 252 - 253 - 254 - 255 - 256 - 257 - 258 - 259 - 260 - 261 - 262 - 263 - 264 - 265 - 266 - 267 - 268 - 269 - 270 - 271 - 272 - 273 - 274 - 275 - 276 - 277 - 278 - 279 - 280 - 281 - 282 - 283 - 284 - 285 - 286 - 287 - 288 - 289 - 290 - 291 - 292 - 293 - 294 - 295 - 296 - 297 - 298 - 299 - 300 - 301 - 302 - 303 - 304 - 305 - 306 - 307 - 308 - 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Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
15	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1

CEL
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Signature: *[Signature]*
شركة الأهلي
210 - 091 - 537
رقم الترخيص الهندسي 2763/001
القرار رقم 105/2022 - 2763/001

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 2763/001 - 2763/001

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Societies of Engineers

31 Mark E-Mat Shair
Zaidan, Gass
Cell No. 2763/001 - 2763/001



Project	: Electric Express Train – HSR From Qoms To Arman
Location	: ST:641+400 E= 492410.088 N=2862759.57
Type of sample	: Soil Embankment (Upper Embankment 0.0 M)
Delivery Date	: 19/09/2023
Reporting Date	: 23/09/2023
Reporting No.	: 10-5

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Abstract



Company Name : شركة الذهب
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST:641+400 E= 492410,088 N=2862759,57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 19/09/2023
 Reporting Date : 23/09/2023
 Reporting No. : 10-5

Soil Classification

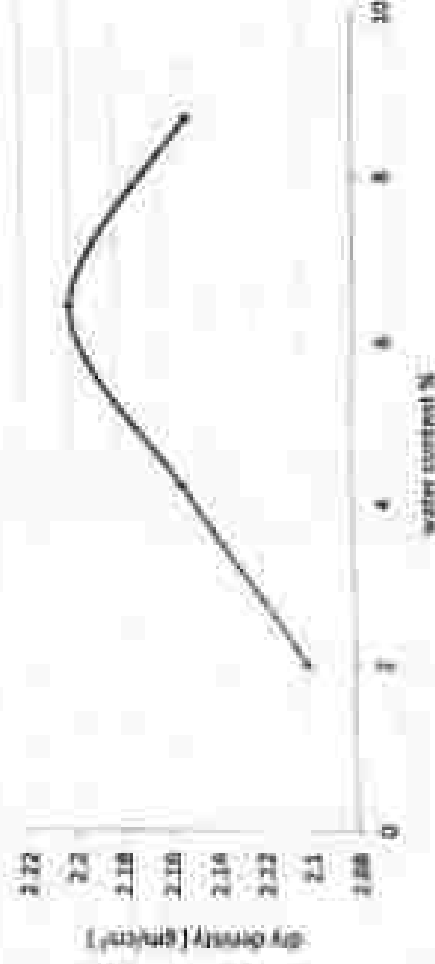
TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-d)
2.00 mm (No.10)	41.5	Max 50 %	---	---
0.425 mm (No. 40)	25.2	Max 20 %	Max 50 %	---
0.075 mm (No. 200)	.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	---	---	---	---
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armand
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum water content (%) : 6.4 %

Signature
Consulting Engineering Bureau & Laboratories
شركة الأهلي
219 - 208 - 237
رقم التسجيل المخصص : 27700000
المركز الرئيسي : شارع النيل - القاهرة

10/10/2023
Zaidan Gills
10/10/2023

IAS
Institution
of Architects

10/10/2023
10/10/2023
10/10/2023

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Materials
ASTM D 1557

penetration			stress on piston (Mpa)
mm	Inch		
0.64	0.025		0.38
1.27	0.050		1.57
1.91	0.075		2.69
2.54	0.100		3.73
3.18	0.125		4.64
3.81	0.150		5.43
4.45	0.175		6.09
5.08	0.200		6.54
6.35	0.250		6.92
CBR Result	Stress (Mpa)		CBR 100 %
	St. Value	Sample results	
	6.92	3.73	
At 0.1 Inch (2.54 mm) penetration			54 %

Notes

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20(gm /cm³)

At = 0.4
California Bearing Ratio (CBR) = 54 %
10 kg
Signature: 
J. E. Hany
Date: 23/09/2023

according project spec page No 3/6

J. E. Hany E. Hany Hany
Engineer, Civil
No. 101 - 200000 - 200000

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Company Name : شركة الطهي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0,0 M)

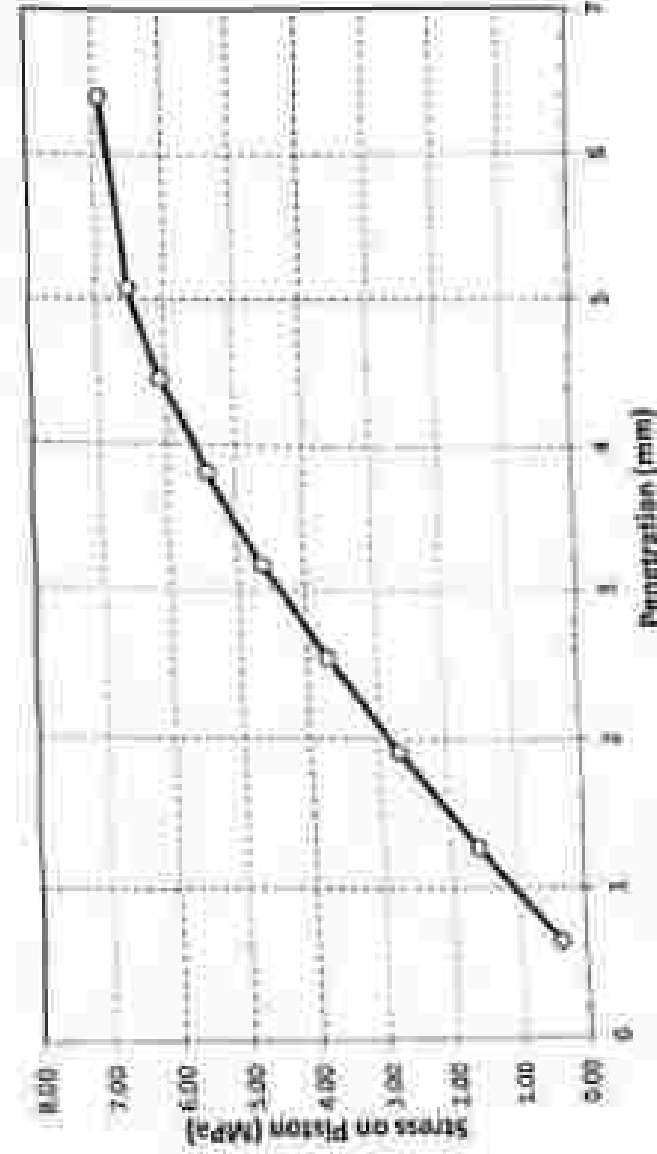
Delivery Date : 19/09/2023

Reporting Date : 23/09/2023

Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



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شارع صلاح / حي جوارح واديا
2119 - 0591 - 037
رقم التسجيل المبرمج 14400
المركز الرئيسي في شارع الملك عبدالعزيز - الرياض 11564

(Printed) E: 492410
Qous, Iraq

IAS

المركز الرئيسي
شارع الملك عبدالعزيز
الرياض 11564

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanit
Testing Date : 25/09/2023
Soil type : Upper Embankment
Location : St + From 641+200 To 641+300
Level : ± 1.25 M
Report No. : 71

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+230	1768.9	2.23	6	2.11	96.2%	Comply
2	641+260	1716.7	2.25	6.4	2.11	96.4%	Comply
3	641+290	1770.8	2.23	6.4	2.09	95.6%	Comply

Degree of compaction based on proctor test dated At:

Max. dry density = 2.15 gm/cm³

At optimum moisture content = 6.4 %

Signature /

[Handwritten Signature]

El Mostafa El Agha Elsay
Geotech. Eng.
Tel: 011 2656231 - 2656000



الاستشارات
الهندسية
مكتب دراسات
والاستشارات الهندسية

شركة الطاهر: **Company Name**

Project : Electric Express Train – HSR From Qom To Ararat

Location : ST:641+400 E=492410.089 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M.)

Delivery Date: 08/09/2023

Reporting Date : 12/09/2023

Reporting No. 10-4

Dear Gentleman,

Attached here with the delivered on 8/9/2023

This sample is representative for 5 000 M³

Abstract

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1583

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: CEL

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1. *Chlorophyll a* (Chl a) is the primary photosynthetic pigment in most plants and algae. It is a green pigment that absorbs light energy in the blue and red regions of the visible spectrum. Chl a is essential for the light-dependent reactions of photosynthesis, where it converts light energy into chemical energy in the form of ATP and NADPH.


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مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qom To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (DN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
The Representative of the Client
Date: 12/09/2023
Name: Mr. (Name of the Representative)

VE: Mr. E. Al-Jabbar
For: Mr. (Name of the Representative)
Cell: 00000000000000000000

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00000000000000000000
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Company Name : شركة كهرباء
 Project : Electric Express Train - HSR From Qum To Armut
 Location : ST:641+400 K=492410.655 N=2862759.57
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 08/09/2023
 Reporting Date : 12/09/2023
 Reporting No. : 10-4

Materials finer than 75 µm (No.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 µm (No.200)	0.9

Signature : *[Signature]* 2/5



Dr. Mervat Elmaghrabi
 Technical Manager
 01011001111 / 01011001111



Dr. Mervat Elmaghrabi
 Technical Manager
 01011001111 / 01011001111

CEL

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مكتب محامى الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Mark E-Med Street
Cairo City
11564 Egypt





مركز خدمات العملاء
البريد الإلكتروني
info@cel-eg.com

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	————	————
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	————
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	————	————	————	————
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 


10/09/2023
12/09/2023
10/09/2023

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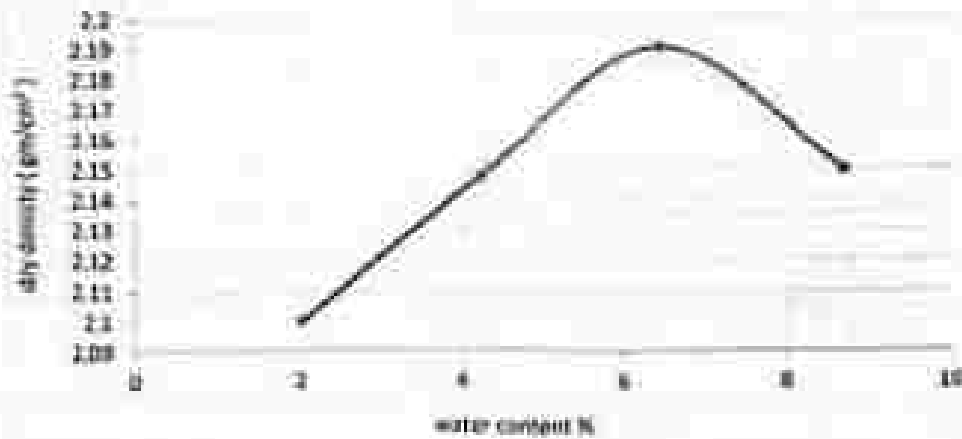
م.م. محمد العبد
م.م. محمد العبد
م.م. محمد العبد

CEL


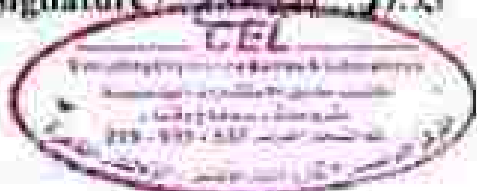
Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature: 

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية
الرياض - 115
الهاتف: 3397522 - 3397521
الفاكس: 3397522 - 3397521

S. E. Alkhatib & Alkhatib
Zaria, G.H.
Tel: 3397522 - 3397521

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م. ع. الخياط
الرياض - 115
الهاتف: 3397522 - 3397521
الفاكس: 3397522 - 3397521

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /


J.P. EL-HAYAT
Director / IAS
Tel/Fax : 01040221209/01040221208



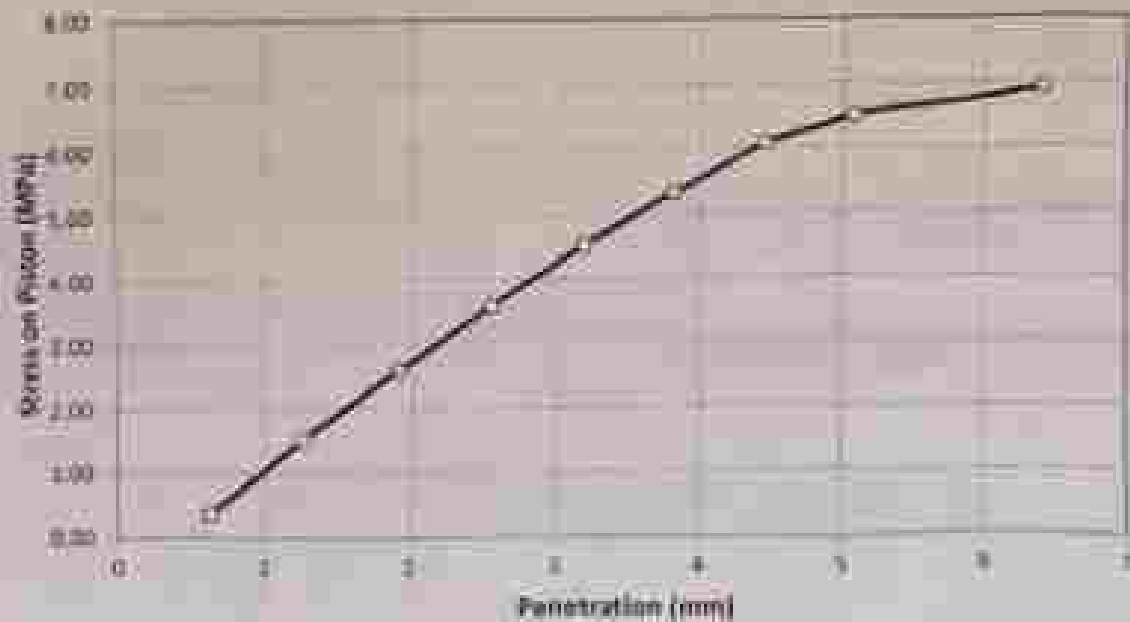
في المختبر
في الموقع
مكتب
01040221209 / 01040221208

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qom To Arvand
Location : ST-641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature: *[Handwritten Signature]*
[Circular Stamp/Seal]

William Corporation
Dallas, Texas
Tel: (214) 343-1111

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ISO 9001:2015
ISO 17025:2017
ISO 14001:2015



Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+620	1490	2.23	5.5	2.1	96.6%	Comply
2	641+670	1335	2.30	5.8	2.2	99.1%	Comply
3	641+699	1610	2.21	6.4	2.1	95.1%	Comply
4	641+705	1413	2.29	5.8	2.2	98.9%	Comply
5	641+730	1535	2.25	6	2.1	97.0%	Comply
6	641+750	1490	2.28	6.4	2.1	97.8%	Comply
7	641+765	1525	2.27	6	2.1	97.6%	Comply

Signature _____

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العدد ١٤٣٥ هـ / ٢٠١٣ م
العدد ١٤٣٥ هـ / ٢٠١٣ م

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

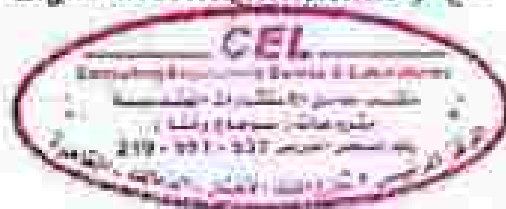
This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / ... (ع.ع.ال.د) ع



1 E-Mark E. Al-Jalal
Zarqa, Jordan
Tel/Fax: 2279227 - 2279228



إبراهيم ع.الجلال
أحمد ع.الجلال
مهندسين معتمدين
2279227 - 2279228

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature

[Handwritten Signature]
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
218 - 281 - 239
القاهرة - مصر

111 Nahr El Jebel Street
Zakaria, Cairo
S.A. Fax 206623 - 275039



إلى إمام الذهبى
إمارة القاهرة
مصر

CEL

Consulting Engineering Bureau & Laboratories

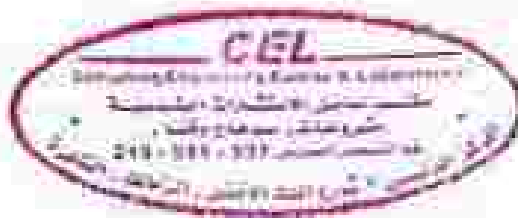
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 



3E MARI E AMI Street
Zakaria, Cairo
S.A.Fax 2796253 2796255



د. محمد عبد الله
المهندس - المهندس
المهندس (مهندس) / المهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature : 

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
QOS - QOS - QOS
QOS - QOS - QOS

10-0410-088-57
QOS - QOS - QOS
QOS - QOS - QOS





QOS - QOS - QOS
QOS - QOS - QOS
QOS - QOS - QOS

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 

 مهندس محمد عبد الله عبد الله
 مهندس محامل الاستشارات الهندسية
 233 - 915 - 918
 233 - 915 - 918

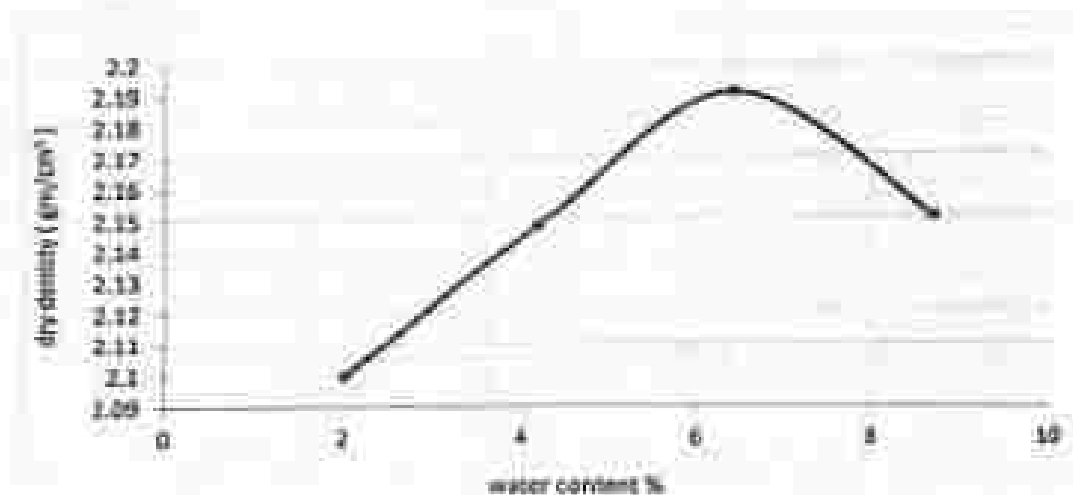
JE Main E-Office
Cairo, Egypt
T: 233 20023 F: 233 20021



م. محمد عبد الله
 م. محامل
 م. محمد عبد الله

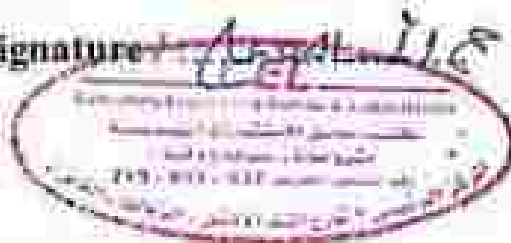
Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature :



14, Quai E. Buisson
Draïou, Camp
Saf Ha - 274021 - 274000



مركز معماري
الهندسة المعمارية
شماره 14، شارع بوسون

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

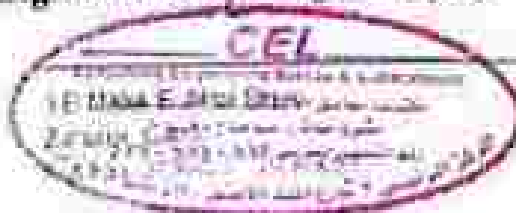
penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

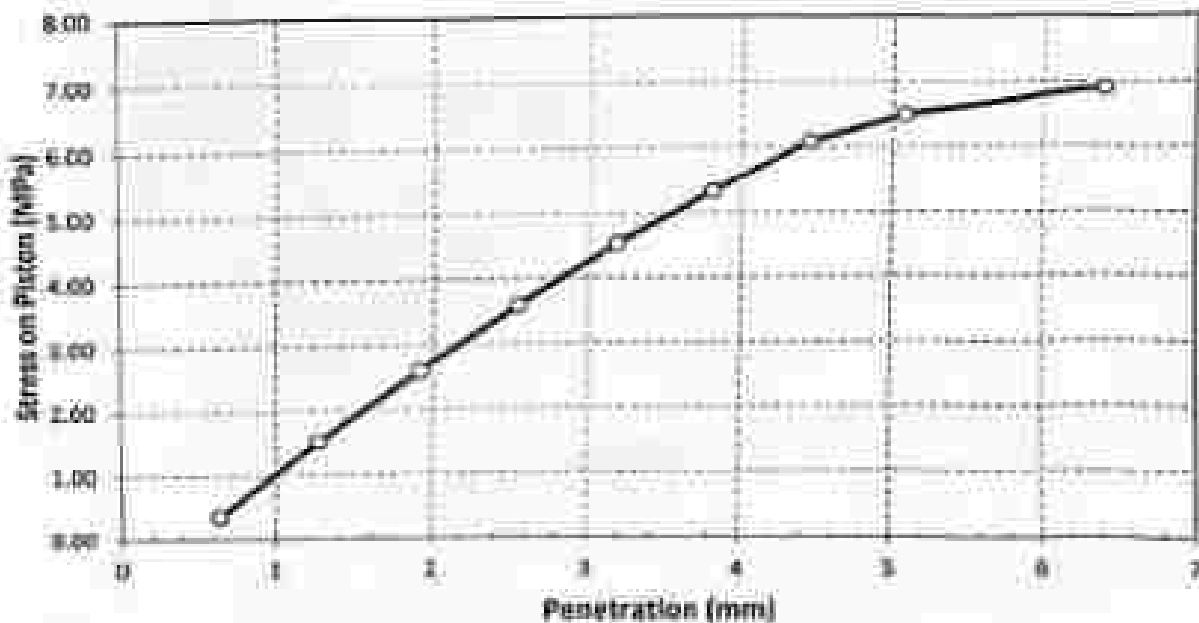
Signature : *[Signature]*



إدارة المختبر
البيانات
البيانات

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862739,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test



Signature / J. A. I. E



JEAN ERMANN
Avon, Conn.
Tel/Fax: 203/261-2400



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CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 17/09/2023
Soil type : Lower Embankment
Location : St + From 641+200 To 641+300
Level : - 13 M
Report No. : 74

Compaction test by using Sand – Cons Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	2106.9	2.23	6.4	2.09	95.1%	Comply
2	641+240	1763.2	2.26	5.8	2.13	97.0%	Comply
3	641+260	1281.3	2.29	5.6	2.17	98.6%	Comply
4	641+280	1658.3	2.23	6.4	2.10	95.3%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.4%

Signature 

11 Mike El-Helwan
Zakaria City
ASTM 2007-2008



إدارة المختبر
الهندسة المدنية
مختبر المعايير

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Dear Gentleman,

Attached here with the delivered on 19 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Notes: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



J E NABK E AHM SHAR
Bureau Chief
T: 011-27600000

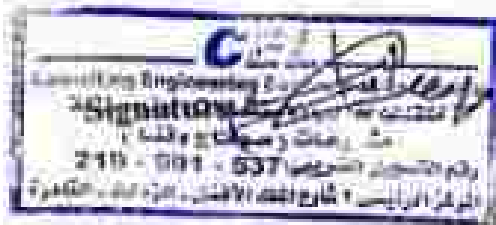


م.م. عبد الله محمد
م.م. محمد عبد الله
م.م. محمد عبد الله

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	90.2
19	3/4	85.2
12.50	1/2	74.9
9.50	3/8	71.2
4.75	4	55.1
2.00	10	41.5
0.425	40	25.2



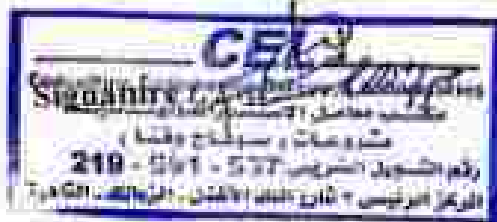


Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1



11, Hana & Hana Street
Zirah, Cairo
Tel: 011-22444444 - 011-22444444



إدارة الجودة
إدارة البيئة
إدارة السلامة

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	41.5	Max 50 %	-----	-----
0.425 mm (No. 40).	25.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	31	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 
 مهندس محمد عبد الله الذهبي
 مهندس استشاري
 رقم التسجيل المبرمج: 249 - 091 - 532
 المقر: الرياض - شارع الملك فهد - برج الملك فهد - الطابق 5

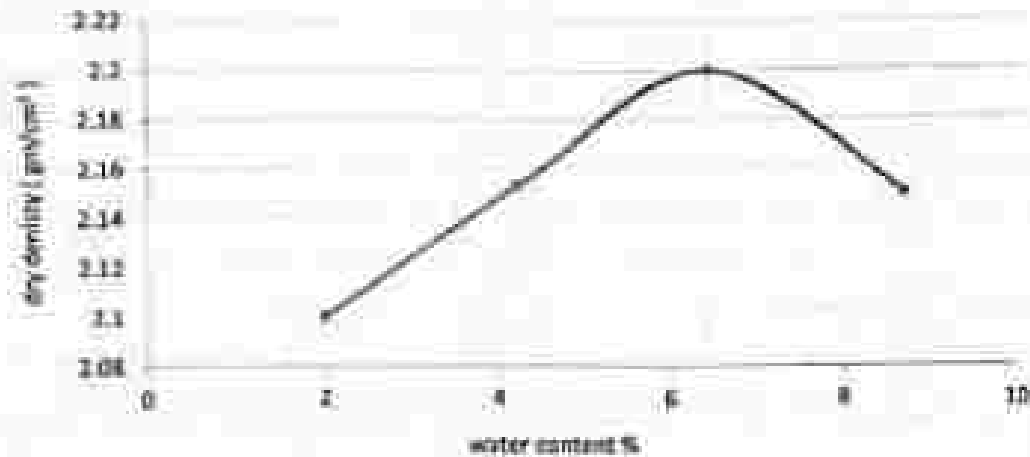
10 Min E. Alai Street
 Zuhair City
 Tel/Fax 2764222 - 2764234




رقم التسجيل
 249 - 091 - 532
 رقم الترخيص

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
219 - 991 - 537
القاهرة - مصر

VE Mark E. Alaa Shahr
Zorah, Giza
T: 219 - 991 - 537

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ACCREDITED
Engineering Laboratory

إمارة القاهرة
القاهرة - مصر
T: 219 - 991 - 537

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.38
1.27	0.050	1.57
1.91	0.075	2.69
2.54	0.100	3.73
3.18	0.125	4.64
3.81	0.150	5.43
4.45	0.175	6.09
5.08	0.200	6.54
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	54 %
	6.90	3.73	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm / cm}^3)$
At = 6.4 % optimum water content.

Maximum load 4.50 Kg.

to form middle lower embankment according project spec page No 36.

Signature: 
مكتب معامل الاستشارات الهندسية
239 - 381 - 537
رقم التسجيل المكون من ثلاث ارقام
الموقع الإلكتروني: www.cel-lab.com

CEL Lab. QATAR
3483 m. Doha 2206200



إدارة المختبر
إعداد: المهندس
مختبر - قطر

CEL

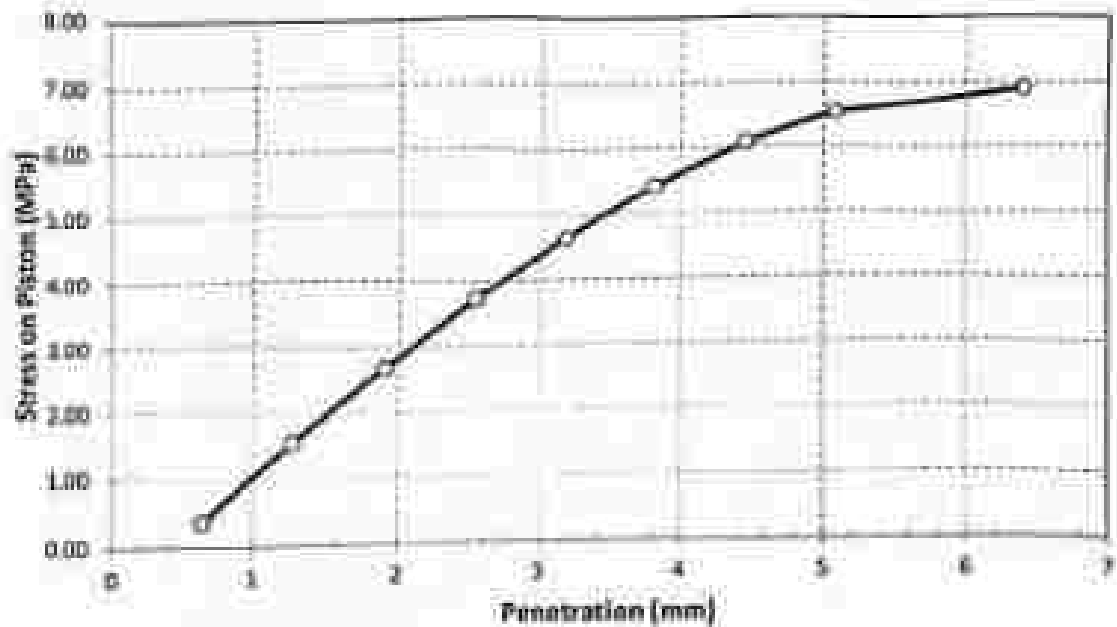
Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 19/09/2023
Reporting Date : 23/09/2023
Reporting No. : 10-5

Load Penetration Curve of CBR Test

ASTM D-1883



Signature 
Engineer
219 - 00
مكتب محامل الاستشارات الهندسية
رقم التسجيل 219 - 00
الشارع الرئيسي - القاهرة - مصر

CE Mark E Approval
219 - 00
2023/09/23

IAS
ACCREDITED
Testing Laboratory

تم إعداد التقرير
بموجب
المواصفة
التي تم اعتمادها من قبل



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 03 /10/2023
Soil type : Upper Embankment
Location : St From 641+300 TO 641+420
Level : - 1.25 M
Report No. : S1-2

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

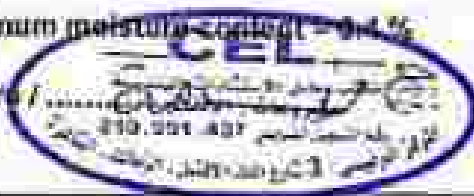
Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	911.1	2.32	6.4	2.18	98.5%	Comply
2	641+340	1409.7	2.32	6	2.19	98.9%	Comply
3	641+360	1558.3	2.34	6.4	2.20	99.7%	Comply
4	641+380	1391.7	2.24	6	2.11	95.5%	Comply
5	641+400	1228.5	2.27	6.4	2.13	96.5%	Comply

Degree of compaction based on proctor test dated At

Max. dry density =2.21 gm/cm³

At optimum moisture content = 9.4 %

Signature /



3 El Mahdi El Agha Street
Zaraka, Cairo
Tel/Fax : 2736/2251 - 2736/2293



مركز اختبار
مهندسة الهندسة
مهندسة الهندسة

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Dear Gentleman,

Attached here with the delivered on 26 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883.

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



16 Mga B Abd Sine
Zaraka, Cam.
9614 274737 - 2747331



م. م. م. م. م.
م. م. م. م. م.
م. م. م. م. م.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.4
37.5	1.5	96.5
25	1	91.3
19	¾	85.1
12.50	½	74.9
9.50	3/8	71.4
4.75	4	52.7
2.00	10	35.0
0.425	40	20.9

Signature / 



1 El Madaa El Ahsa Street
Zooara, Cairo.
Tel&Fax: 27365131 - 27365669



أمر إنشاء المختبر
رقم 100
تاريخ 11/11/2019

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Company Name : شركة الأدهي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.2

Signature / 



Dr. EMMANUEL ADAMI SHIH
Director, Cairo
Tel & Fax 24379519 - 24379519



مدير المختبر
مدير المختبر
مدير المختبر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



JED MSAH E' PASSI STREET
DUBLIN, Cairo
Tel & Fax : 2736723 - 2736703



إدارة المختبرات
إدارة الجودة
رقم الترخيص 437

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	35.0	Max 50 %	-----	-----
0.425 mm (No. 40).	20.9	Max 20 %	Max 50 %	-----
0.075 mm (No. 200).	9.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / ... /



3 El Mada El Mada Street
Zewail, Cairo
Tel Fax: 2736723 - 2736760



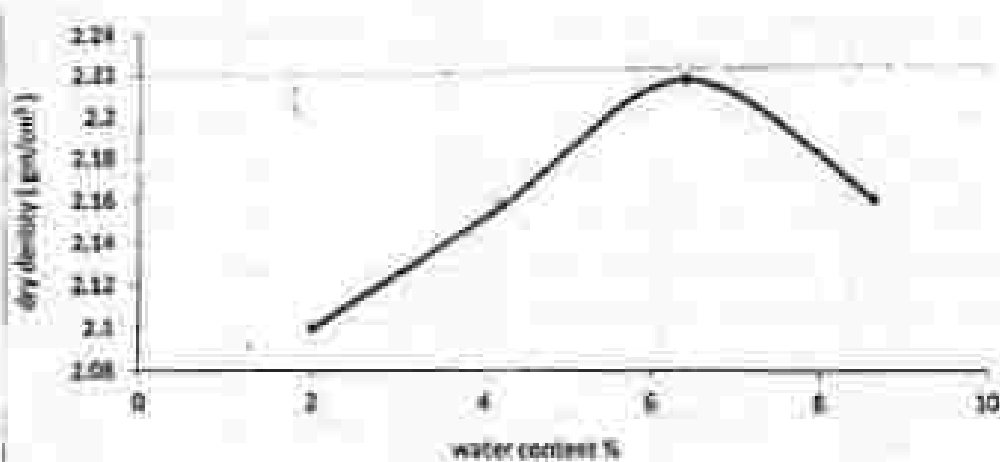
المحكمة الهندسية
الهيئة العامة
الرقم 107 / 2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

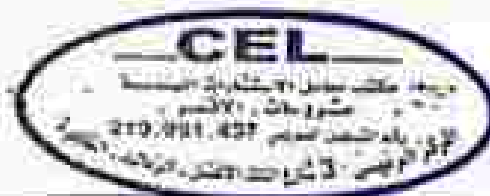
Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ح. نديمة



10 Malek El Abdel Street
Zakaria, Cairo
Tel/Fax: 219981427 - 219981427



إشراف المهندس
إشراف المهندس
إشراف المهندس
إشراف المهندس

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armant

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 26/09/2023

Reporting Date : 30/09/2023

Reporting No. : 10-7

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.61
1.91	0.075	2.73
2.54	0.100	3.76
3.18	0.125	4.67
3.81	0.150	5.47
4.45	0.175	6.14
5.08	0.200	6.59
6.35	0.250	6.96

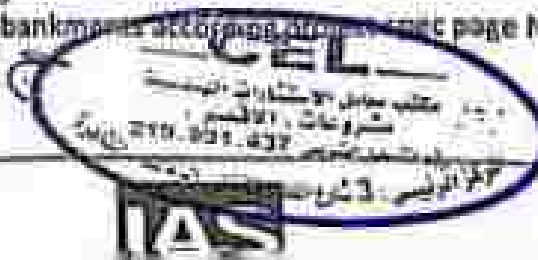
CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	54.5 %
	6.96	3.76	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according to spec page No 36.

Signature / 

3 El Mares El Aghni Street
Zamalek, Cairo



مركز المعاملات الهندسية
الزمالك - القاهرة

CEL

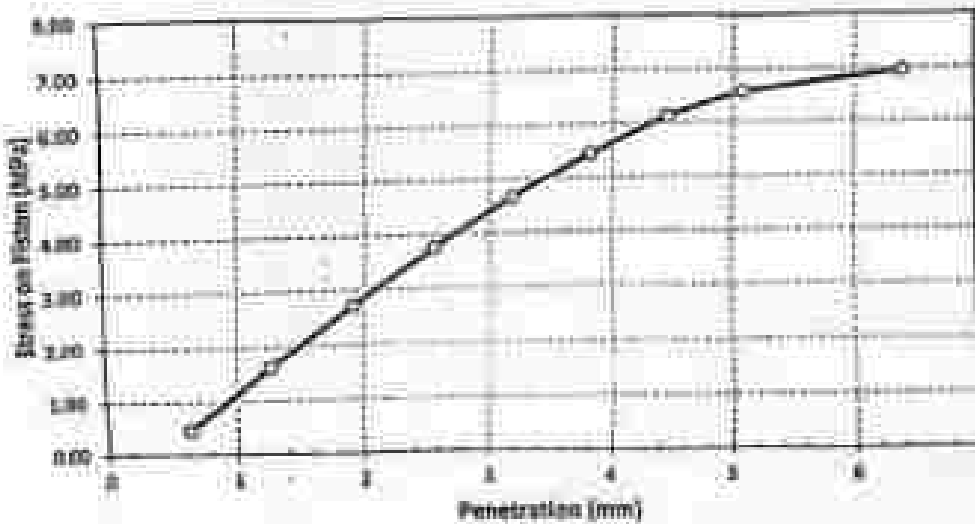
Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qoms To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 26/09/2023
Reporting Date : 30/09/2023
Reporting No. : 10-7

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / 



3D Mark & Audit Group
Zurich, CH
Tel Fax: 2706257 - 2706258

إمارة دبي
شارع 104
مبنى 104-104-104

Scanned with CamScanner

Scanned with CamScanner

Company Name : شركة الاهي
Project : Electric Express Trains - HSR From Ques To Armat
Testing Date : 05 /10/2023
Soil type : Middle Embankment
Location : St. From 641+620 To 641+800
Level : - 1.75 M
Report No. : 85

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+640	1725.0	2.26	6.4	2.12	96.0%	Comply
2	641+680	1643.1	2.25	6.4	2.12	95.8%	Comply
3	641+700	1464.6	2.28	5.8	2.16	97.7%	Comply
4	641+720	1604.2	2.22	5.5	2.11	95.4%	Comply
5	641+740	1513.9	2.29	5.6	2.17	98.1%	Comply
6	641+760	1495.8	2.24	5.8	2.12	95.0%	Comply
7	641+780	1509.7	2.30	6	2.17	98.0%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³

At optimum moisture content = 5.4 %

Signature /


Dr. Mohamed El-Ahly
219, 991, 431
3 شبراخيت - الدقهلية - مصر

3 El Maak El Ahly Street
Zakaria, Cairo
Tel Fax: 2736531 - 2736000



إدارة المشاريع
إدارة الجودة
إدارة السلامة
ISO 9001:2015 / ISO 14001:2015

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Dear Gentleman,

Attached here with the delivered on 27/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



3 El Mank El Ahd Seel
Zagazig, Egypt
T: 010 2246727 / 2246709



أول مكتب هندسي
في مصر
شهادة اعتماد

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	95

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	37.5	Max 50 %	-----	-----
0.425 mm (No. 40)	23.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 



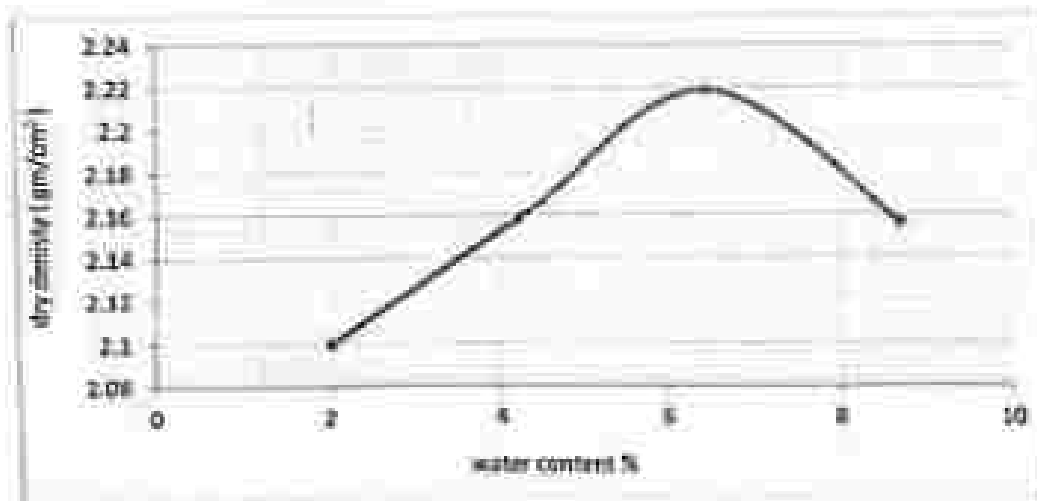
SEI Nook E Aldi Street
Zandara, Cairo
Tel/Fax: 22367231 - 22367683



مركز خدمات العملاء
إدارة الجودة
مكتب: 210 191 427 - 210 191 427

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ...



Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.64
1.91	0.075	2.74
2.54	0.100	3.79
3.18	0.125	4.68
3.81	0.150	5.48
4.45	0.175	6.16
5.08	0.200	6.60
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 6.3 inch (2.54 mm) penetration	St. Value	Sample results	55 %
	6.90	3.79	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.21(gm /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project specification.

Signature / ... 



3 E) Nile El Atou Street
Bersha, Giza
Tel/Fax: 27307231 - 27303203



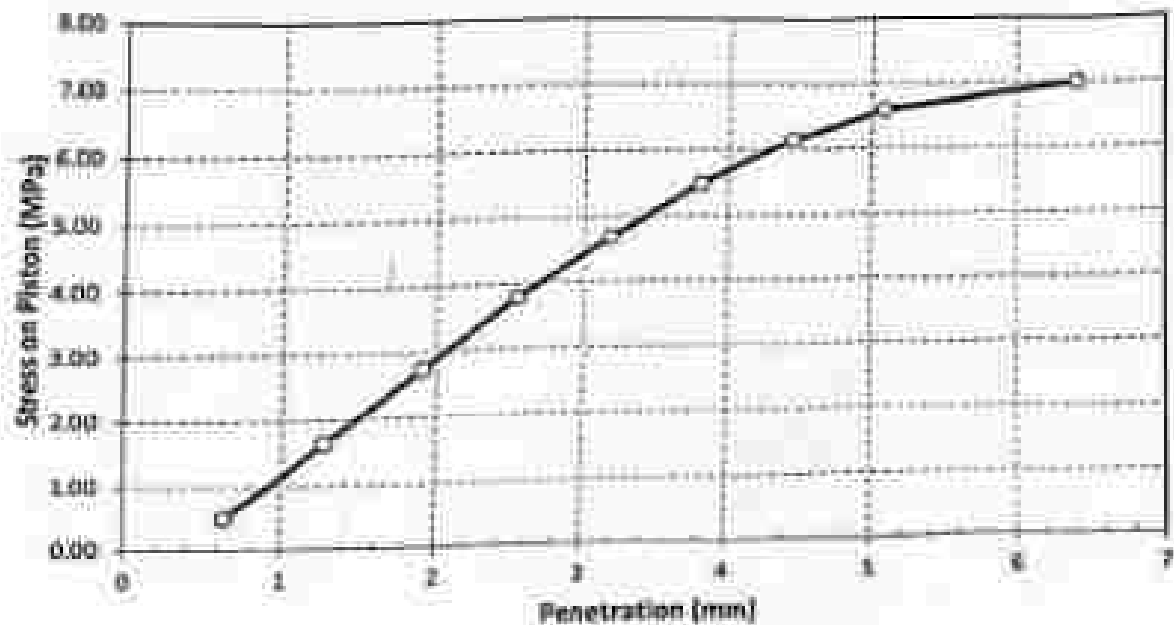
م. عبد الله
إدارة القاهرة
هاتف: 011 432 1010

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهرى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Load Penetration Curve of CBR Test ASTM D-1883



Signature / 



3 El Mahk El Arab Street
Zamalek, Cairo
Tel/Fax: 27362231 - 27362232



3 شارع التحرير
القاهرة، الجيزة
27362231 - 27362232

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 05/10/2023
Soil type : Upper Embankment
Location : St From 641+300 To 641+420
Level : -1 M
Report No. : 87

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Molsture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1405.6	2.31	5.5	2.19	99.0%	Comply
2	641+340	1538.9	2.23	5.8	2.11	95.4%	Comply
3	641+360	1466.0	2.29	5.6	2.17	98.3%	Comply
4	641+380	1356.9	2.29	5.6	2.17	98.2%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density = 2.21 gm/cm³

At optimum-molsture content = 6.4

Signature /



3 El Motek El Ahlu Street
Zamalek, Cairo
Tel& Fax: 27356723 - 27356363



إدارة المختبر
3 شارع المتك الأهلى
27356723 / 27356363

Company Name : شركة الاهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=3862759,57
Type of sample : Soil Embankment (Upper Embankment 0.6 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Dear Gentleman,

Attached here with the delivered on 27/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-421.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature / 



3 El Mada E Atay Street
Zakaria, Cairo
Tel Fax 2745000 - 2745000



إلى السيد /
الرجاء التفضل
بالتوقيع

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.6
37.5	1.5	97.4
25	1	95.3
19	¾	81.1
12.50	½	76.7
9.50	3/8	72.1
4.75	4	53.3
2.00	10	37.8
0.425	40	23.5

Signature / (محمّد) محمد



5B Main El Atia Street
Zamalek, Cairo
Tel&Fax: 02040001 - 02040009



أمر المهندس
إبراهيم محمد
مهندس - مقيم

Company Name : شركة للذهب
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.6
37.5	1.5	97.4
25	1	95.3
19	3/4	81.1
12.50	1/2	76.7
9.50	3/8	72.1
4.75	4	53.3
2.00	10	37.8
0.425	40	23.5

Signature / Qasim Ali



3 El Madi St. 1st Floor
Zagazig, Egypt
Tel/Fax: 203-3551-3700/3701



في هذا العدد

Scanned with CamScanner

Scanned with CamScanner

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.5

Signature / 



3 El Malek El Agha Street
Dokki, Cairo
Tel/Fax: 27370521 - 27370563



الموافقة / المستر
إبراهيم السيد
مدير المختبر

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 El Mahdy El Agha Street
Zarqa, Jord.
Tel & Fax: 7720753 - 7720300



أمر ملكي الإصدار
الرقم: ١٠٠٠٠٠٠٠٠
تاريخ: ١٠/١٠/٢٠٢٣

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	37.5	Max 50 %	-----	-----
0.425 mm (No. 40).	23.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

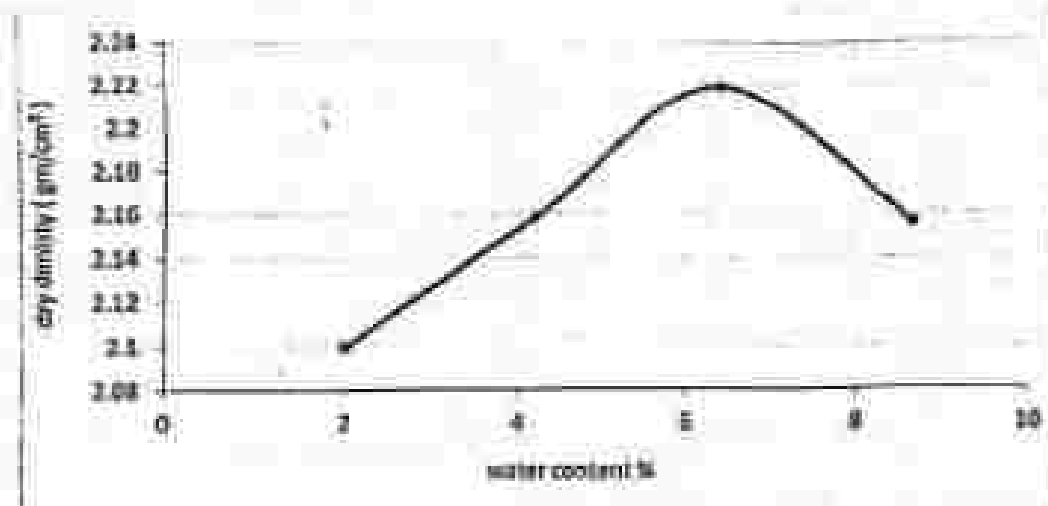
The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature / ...



1 B Nake El Ahd Street
Zakaria, Cairo
Tel/Fax: 2034723 - 2034763



مركز خدمات العملاء
رقم الهاتف: 2034723
البريد الإلكتروني: info@cel.com.eg

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.64
1.91	0.075	2.74
2.54	0.100	3.79
3.18	0.125	4.68
3.81	0.150	5.48
4.45	0.175	6.16
5.08	0.200	6.60
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	55 %
	6.90	3.79	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 (\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project specification.

Signature / ... 



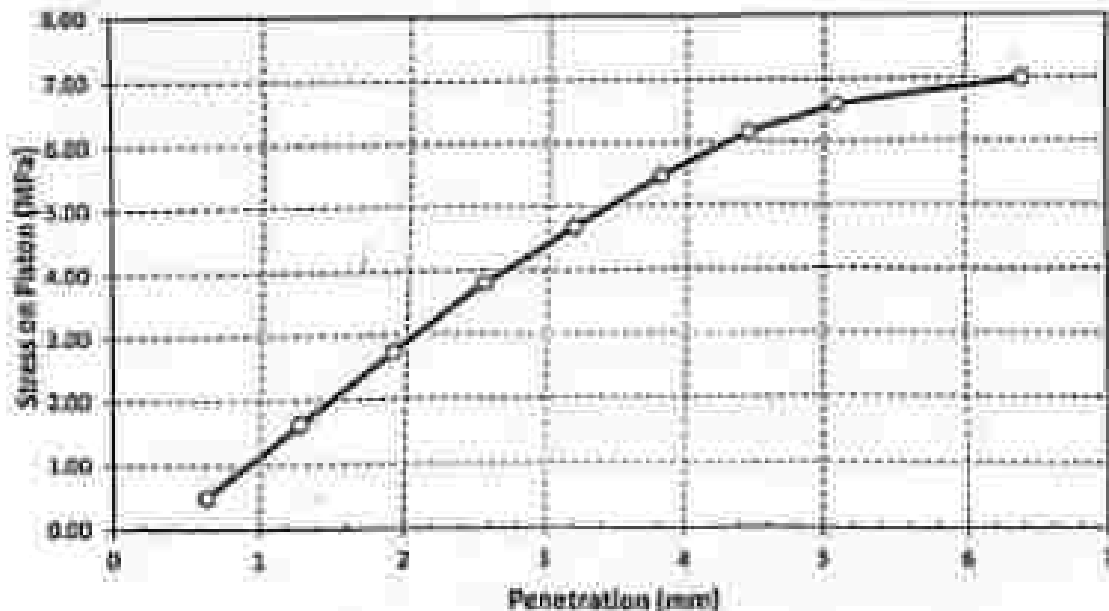
15 El Male El Agha Street
Zakaria, Cairo
Tel & Fax: 27367237 - 27367663



أ.م.ع. محمد الذهبى
م.ع. أحمد الذهبى
م.ع. خالد الذهبى

Company Name : شركة الأنبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-8

Load Penetration Curve of CBR Test



Signature / 



1800 Main E. 4th Street
Durham, N.C.
Tel/Fax: 336/403-1234 • 336/403-1235



* في كتابه الأول
 في كتابه الثاني
 في كتابه الثالث

Company Name : شركة الذهبى
Project : Electric Express Trains - HSR From Qous To Arman
Testing Date : 16 /10/2023
Soil type : Middle Embankment
Location : St. From 641+420 TO 641+620
Level : -1.75 M
Report No. : 89

**Compaction test by using Sand - Cone Test Method
ASTM D- 1556**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+440	1557.6	2.31	6.4	2.17	97.9%	Comply
2	641+460	1554.9	2.25	6.4	2.11	95.1%	Comply
3	641+480	1471.7	2.30	6	2.17	97.9%	Comply
4	641+500	1620.7	2.28	6.4	2.14	96.3%	Comply
5	641+520	1635.2	2.25	6.4	2.11	95.2%	Comply
6	641+540	1500.0	2.30	6.4	2.17	97.6%	Comply
7	641+580	1295.9	2.32	6	2.19	98.5%	Comply
8	641+600	1725.5	2.26	6	2.13	96.0%	Comply

Degree of compaction based on proctor test dated At

:Max. dry density =2.22 gm/cm³

At optimum moisture content = 6.4 %

Signature



3 El Nasr El Ahsa Street
Zamalek, Cairo
Tel & Fax : 27365211 - 27363093

IAS
ACCREDITED
Testing, Calibration

م. المهندس
إبراهيم الذهبى
مهندس اختبار

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Dear Gentleman,

Attached here with the delivered on 27 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.4
37.5	1.5	94.6
25	1	90.2
19	$\frac{3}{4}$	79.8
12.50	$\frac{1}{2}$	73.9
9.50	$\frac{3}{8}$	70.0
4.75	4	51.6
2.00	10	38.5
0.425	40	22.0

Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Materials finer than 75 μm (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μm (No.200)	8.9

Signature /.....



1 El Niño El Niño Street
Buenos Aires, Argentina
Tel/Fax: 011 54 11 4382 1111

IAS

مركز دراسات
البحر المتوسط

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



1 B MARI El Agha Street
Dokki, Cairo
Tel: Fax: 97362211, 97362200



مركز معالجة المياه
قناة السويس
قاهرة - مصر

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	35.5	Max 50 %	—	—
0.425 mm (No. 40)	22.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	8.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / ... 



10 Malek El Attia Street
Zamalek, Cairo
Tel/Fax: 27367221 - 27367613



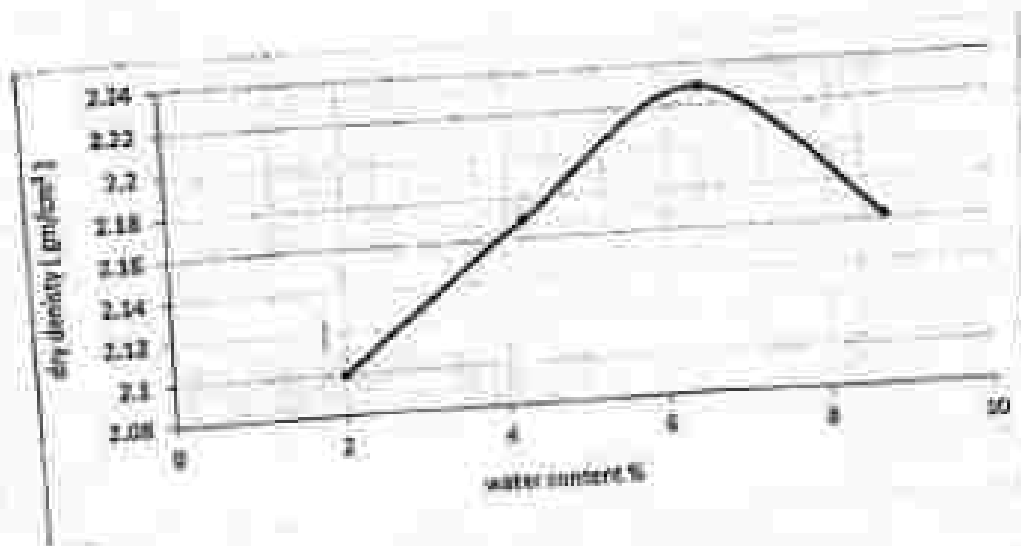
م.م. محمد عبد الله
م.م. محمد عبد الله
م.م. محمد عبد الله
م.م. محمد عبد الله

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Molsture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.22
- Optimum molsture content % : 6.4 %

Signature / 



3 El Shrek El Hada Street
Zamalek, Cairo
Tel/Fax: 27367531 - 27363103



أ.م. المهندس
الربيعات النادرة
مهندس المهندس

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 491410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.66
1.91	0.075	2.75
2.54	0.100	3.81
3.18	0.125	4.70
3.81	0.150	5.49
4.45	0.175	6.18
5.08	0.200	6.65
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CDR 100 %
At 6.35 inch (158 mm) penetration	St. Value	Sample results	55.2 %
	6.00	3.81	

- Notes:
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of $\approx 2.22(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
 - 3- Surcharge load 4.50 Kg.
 - 4- CBR > 10 for middle and lower embankments according to ASTM D 1557.

Signature / 

3 El Masrah El Agha Street
Zamalek, Cairo
Tel/Fax : 23387031 - 23387033



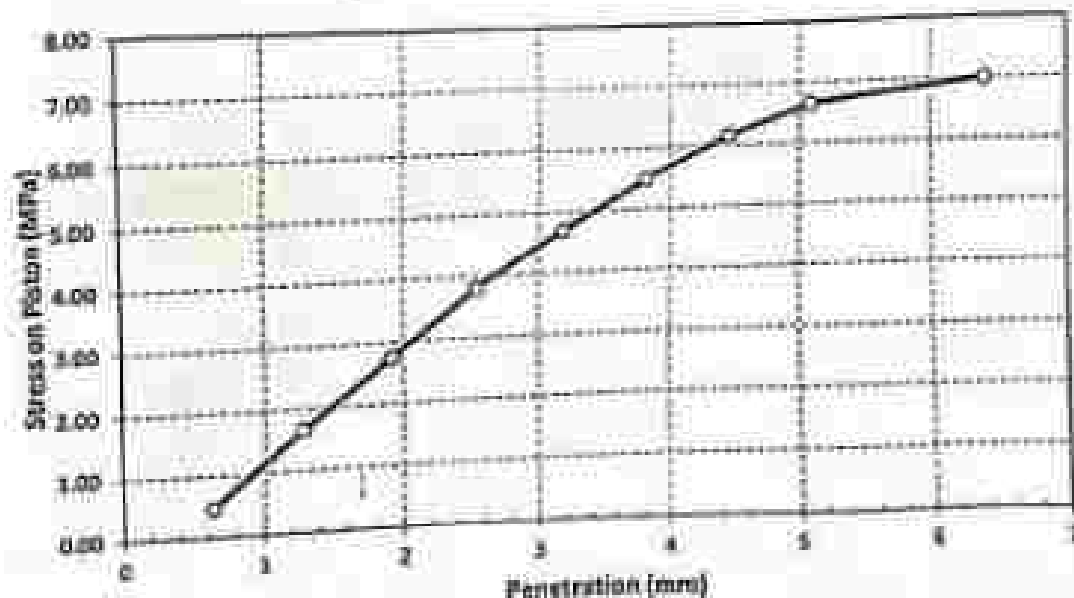
30 شارع الميمنية
الزمالك - القاهرة
هاتف - فاكس : 23387031 - 23387033

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهب
Project : Electric Express Train - HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Load Penetration Curve of CBR Test ASTM D-1883



Signature / (محمد عبد الله)



3 El Mark El Alot Street
Zarqa, Cairo
Tel/Fax (202) 2511-2512



إلى مكتب الاستشارات
2112, 201, 437
الرياض - المملكة العربية السعودية

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الناصر
Project : Electric Express Trade - ISSB From Ques To Amman
Testing Date : 17/06/2023
Soil type : Stable Embankment
Location : St. From 641+400 To 641+700
Level : + 1.2 M
Report No. : 88
Compaction test by using Sand - Core Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density g/cm ³	Moisture Content %	Dry Density (g/cm ³)	Degree of Compaction (%)	Acceptance
1	641+400	1668.0	2.32	6.4	2.18	98.2%	Comply
2	641+400	1631.7	2.27	6	2.14	96.4%	Comply
3	641+400	806.2	3.48	64	2.12	95.6%	Comply
4	641+500	1593.1	2.24	6	2.13	95.1%	Comply
5	641+500	1503.4	2.31	6.4	2.17	97.6%	Comply
6	641+540	1617.9	2.27	5.8	2.14	96.6%	Comply
7	641+600	1585.5	2.32	5.5	2.19	98.8%	Comply
8	641+600	1475.6	2.27	5.6	2.15	97.0%	Comply
9	641+670	1453.1	2.31	5.8	2.18	98.3%	Comply
10	641+640	1485.5	2.33	6.4	2.19	98.8%	Comply
11	641+660	1538.6	2.25	6	2.13	95.9%	Comply
12	641+680	1517.9	2.28	5.8	2.16	97.2%	Comply
13	641+700	1549.0	2.25	6.4	2.12	95.6%	Comply
14	641+720	1476.6	2.27	6	2.15	96.7%	Comply
15	641+780	1485.5	2.33	6.4	2.19	98.8%	Comply
16	641+780	1631.7	2.27	5.5	2.15	96.8%	Comply

Degree of compaction based on proctor test dated At



2 El Mass El Faneh Street
Zamalka, Cairo
Tel/Fax : 3360331 - 3370000



إم. عبد الحليم
مهندس استشاري
مهندس - مهندس

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Dear Gentleman,

Attached here with the delivered on 27/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 



3 El-Nasr El-Arabi Street,
Zamalek, Cairo.
Tel/Fax: 202012111 - 202012112



في مكتب الاستشارات
الهندسية
شركة الذهبى
رقم الترخيص: 437

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.4
37.5	1.5	94.6
25	1	90.2
19	3/4	79.8
12.50	1/2	73.9
9.50	3/8	70.0
4.75	4	51.6
2.00	10	38.5
0.425	40	22.0

Signature /
عبد الله محمد



10 Mark & Mail Box
Zurich, CH
Tel/Fax: 0041 77 20 00 00



إلى: شركة مصر للهندسة والبناء
مكتب معمل الاختبارات
رقم الترخيص: 219, 221, 427

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	8.9

Signature /.....



3 El Hadek El Akad Street
Zakaria, Cairo
Tel. Fax : 2736223 - 2736897



أ. م. محمد الجبيل
رئيس مجلس إدارة
مكتب الذهبى

Company Name : شركة النهي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 



3 ENNAH EARTH SHC
Zayed, Cairo
Tel/Fax: 23467231 - 23467232



مركز اختبار التربة
البيانات : التربة
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Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-b)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-b)
2.00 mm (No.10)	38.5	Max 30 %	-----	-----
0.425 mm (No. 40)	22.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	8.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature / ... 



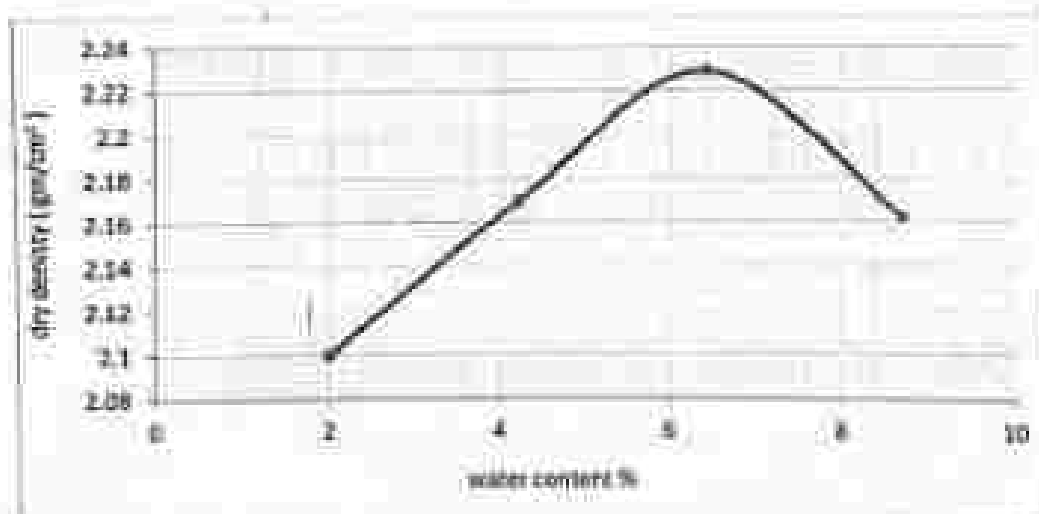
501 Mark E. Reed Street
Durham, NC
Tel/Fax: 919/286-7733-7734



المجلة الإلكترونية
للحقوق الضريبية
عدد ١٠ لسنة ٢٠١٤

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 6.4 %

Signature / 



10-1000 E-1000 Street
Zerzura, Cairo
Tel: 10-1000 - 10-1000



في مكتب المهندس
البريد الإلكتروني
10-1000 - 10-1000

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.48
1.27	0.050	1.66
1.91	0.075	2.75
2.54	0.100	3.81
3.18	0.125	4.70
3.81	0.150	5.49
4.45	0.175	6.18
5.08	0.200	6.65
6.35	0.250	7.01

CBR Result	Stress (Mpa)		CBR 100 %
At 6.1 inch (2.54 mm) penetration	St. Value	Sample results	55.2 %
	6.90	3.81	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.22(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according to **CEL** No. 7

Signature : 



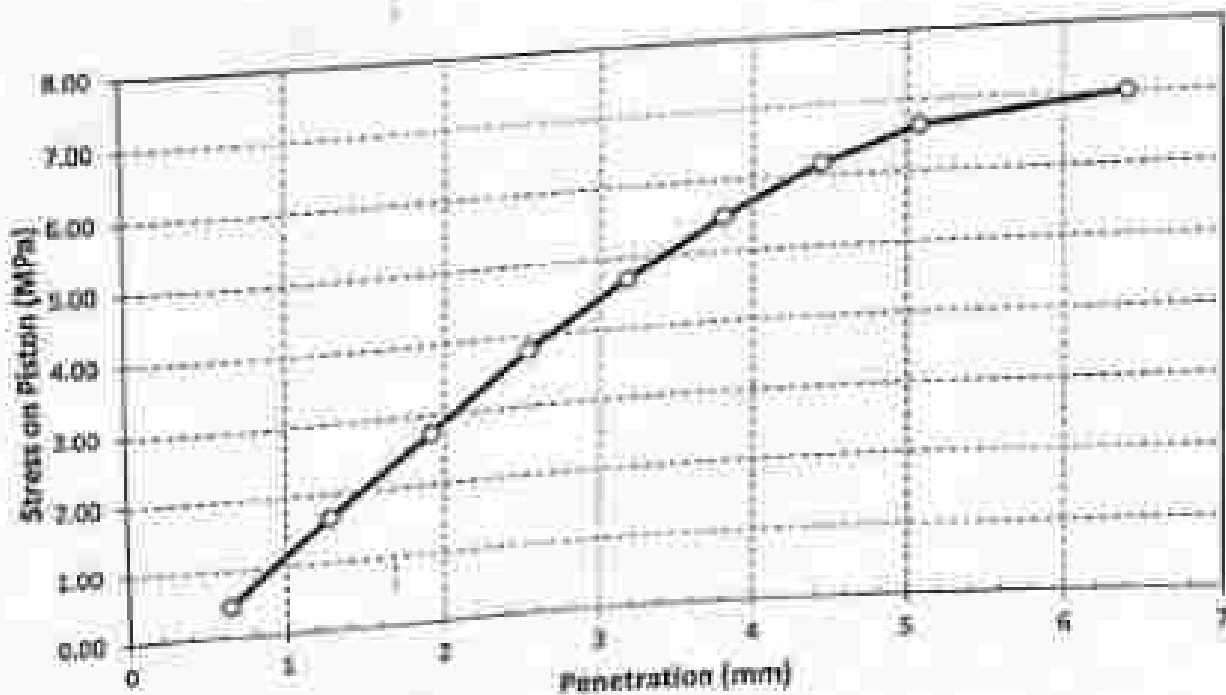
5 E MAHDI EL-AHDI Street
Zorobab, Cairo
Tel, Fax: 22107021 - 22107023



27/09/2023
الوقت: 10:00
الوقت: 10:00

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 27/09/2023
Reporting Date : 1/10/2023
Reporting No. : 10-9

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	97
25	1	90
19	¾	85.4
12.50	½	77.2
9.50	3/8	73.3
4.75	4	69.6
2.00	10	58.5
0.425	40	40.7

Signature / 



38 Mark E Alal She
Zagazig, Egypt
Tel/Fax: 2760421 - 2760423



المهندس / محمد عبد الله
مهندس / محمد عبد الله
مهندس / محمد عبد الله

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Scanned with CamScanner

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Soil Classification

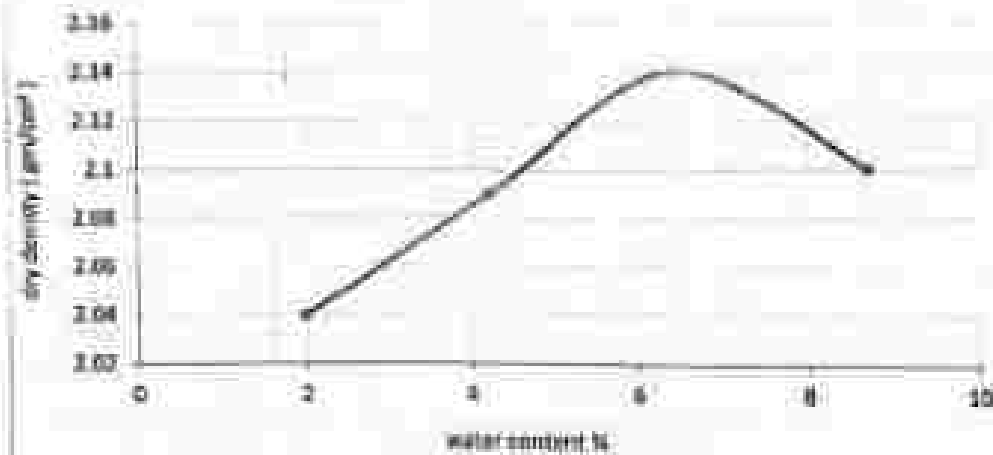
TEST	Results (%)	Limits according Projects Specs		
• Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	58.5	Max 50 %	—	—
0.425 mm (No. 40).	40.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	14.0	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity Index	0	Max 5 %	Max 6 %	Max 10 %

The test results are (☒ Comply ☐ Not Comply) with specifications limits

Signature /  

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



• Max dry density (gm/cm³)

2.14

• Optimum moisture content %

6.3%

Signature

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J E MARR E Road Show
Zaraka, Cairo
Tel Fax: 27362701 - 27362702



م. محمد السيد
إ. محمد السيد
م. محمد السيد

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.45
1.27	0.050	1.00
1.91	0.075	1.52
2.54	0.100	2.11
3.18	0.125	2.53
3.81	0.150	2.96
4.45	0.175	3.39
5.08	0.200	3.71
6.35	0.250	4.33

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	30.6%
	6.90	2.11	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.14 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water
- 3- Surcharge load 450 Kgf
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

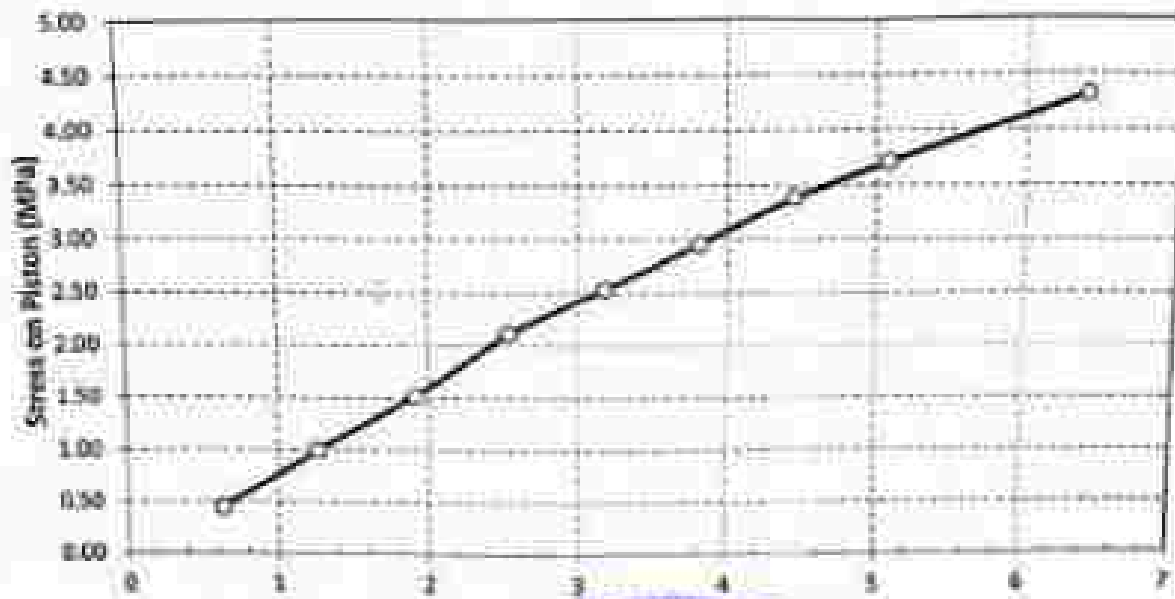
3 D Mark E. Alsol Stew
Fardos, Cairo
Tel Fax: 2367127 - 2367083



مركز عبد الله
إبراهيم
مركز عبد الله
إبراهيم

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 4/8/2023
Reporting Date : 8/8/2023
Reporting No. : 04-3

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 



15 Mile E. Alot Shaw
Zimmi City
NA Fax: 206227 - 279000



28/8/2023
28/8/2023
28/8/2023

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Testing Date : 16/08/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+440
Level : + 3.0M
Report No. : 36

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1681	2.18	5.8	2.06	96.0%	Comply
2	641+380	1622	2.17	5.8	2.05	95.5%	Comply
3	641+420	1591	2.19	5.8	2.07	96.2%	Comply

• Degree of compaction based on proctor test dated At :

- Max. dry density = 2.15 gm/cm³
- At optimum moisture content = 5.5%

• Signature /

1st Mark E. Hossain
Zonalin Cao
Tel: 011-23300000 - 23300001



مهندس
مهندس
مهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Dear Gentleman,

Attached here with the delivered on 14 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature



Company Name : شركة الذهبى
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Type of sample : Soil Embankment
Delivery Date : 14/8/2023
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Reporting No. : 04-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.5
25	1	88.3
19	3/4	77.8
12.50	1/2	70.3
9.50	3/8	66.7
4.75	4	61.6
2.00	10	47.8
0.425	40	28.1

Signature: 

3 El Maha El Alai Street
Zamalek, Cairo
Tel & Fax : 2360721 - 2360700



إم. السيد
م. السيد
م. السيد

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
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Reporting No. : 04-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	13.5

CEL
Signature: 
مهندس محمد عبد الله عبد الله

3 El Mask El Akad Street
Zamalek, Cairo
Tel/Fax : 02567007 - 02560003

IAS
ACCREDITED

إلى: محمد عبد الله عبد الله
مهندس - القاهرة
تليفون - 02567007
فاكس - 02560003



Consulting Engineering Bureau & Laboratories
مكتبه محامل الاستشارات الهندسية

Company Name : شركة الذهبى
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Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Dr. Ehab El-Ashry
215/021-257
م. الذهبى 3 شارع عبد المنعم العزبى

J E Male El Ashry Street
Zagazig, Egypt
Tel/Fax: 01017621 - 01010003



م. الذهبى 3 شارع عبد المنعم العزبى
01017621-01010003
01017621-01010003

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Soil Classification

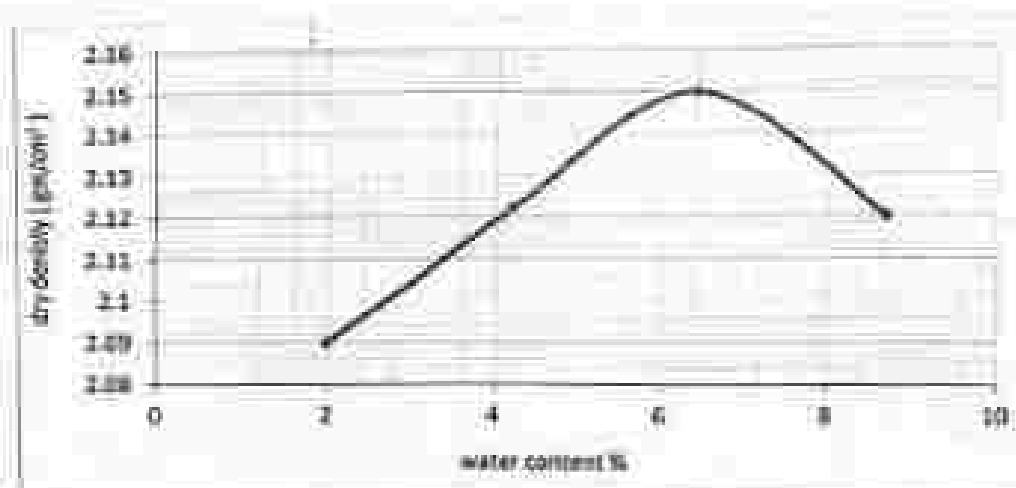
TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	A-1-b	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	47.8	Max 50 %	-----	-----
0.425 mm (No. 40).	28.1	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	13.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature 

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : (ST: 641+500) E= 492410,088 N=2862759,57
Type of sample : Soil Embankment
Delivery Date : 14/8/2023
Reporting Date : 19/8/2023
Reporting No. : 04-4

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.15
- Optimum moisture content % : 6.4 %

Signature

[Handwritten signature]
م. أحمد عبد الله
مهندس
219, 591, 437
3 شارع النيل - القاهرة

1 El Nile El Akh Street
Zamalek, Cairo
Tel/Fax: 27167021 - 27183003

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BY ISO 9001

م. أحمد عبد الله
مهندس
219, 591, 437
3 شارع النيل - القاهرة

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
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Reporting Date : 19/8/2023
Reporting No. : 04-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.75
1.27	0.050	1.52
1.91	0.075	2.23
2.54	0.100	2.99
3.18	0.125	3.65
3.81	0.150	4.21
4.45	0.175	4.67
5.08	0.200	4.97
6.35	0.250	5.07

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	43.4 %
	6.90	2.99	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.15 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load = 10 kg
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 


2-E-Mark E-Had Inc.
Zirah, Giza
Tel/Fax: 2130521 - 2130000



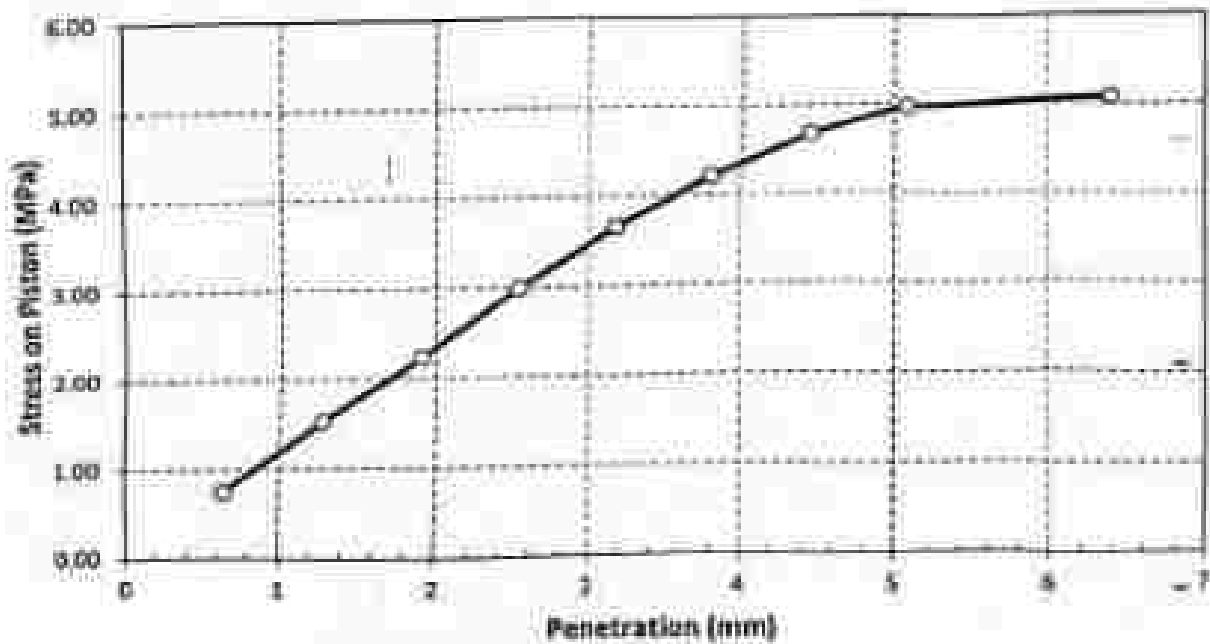
المركز الهندسي
الزهره - الجيزة
الهاتف - الفاكس
2130521 - 2130000

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

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Delivery Date : 14/8/2023
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Reporting No. : 04-4

Load Penetration Curve of CBR Test ASTM D-1883



Signature 
CEL
Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

3 El Marki El Akad Street
Zirahat, Cairo
Tel/Fax: 2330721 - 2330388

IAS
ACCREDITED
Testing Laboratory

إمارة القاهرة
شركة الاستشارات
الهندسية
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 29/08/2023
Soil type : Upper Embankment
Location : St From 641+440/641+620
Level : - 3.5 M
Report No. : 47

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+480	1405	2.28	5.5	2.16	99.0%	Comply
2	641+520	1544	2.22	5.4	2.10	96.4%	Comply
3	641+560	835	2.28	5.8	2.16	98.9%	Comply
4	641+600	1516	2.22	5.6	2.10	96.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.16 gm/cm³
- At optimum moisture content = 5.4%

•

Signature /

[Signature]
[Stamp: 29-08-2023, 15:18, 210-211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000]

3D Max E Plot Show
Zoula, Cairo
Tel Fax: 236003 / 236004



إلى مكتب الهندسة
شركة الذهبى
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Dear Gentleman,

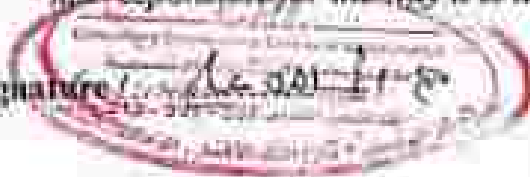
Attached here with the delivered on 24 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557.
6. CBR according to ASTM D-1883.

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Signature:



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Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IS)	Passing %
50	2	99.1
37.5	1.5	92.4
25	1	88.2
19	3/4	83.4
12.50	1/2	78.5
9.50	3/8	70.1
4.75	4	56.2
2.00	10	37.9
0.425	40	15.2

Signature /

10 Mark E. Alami Saeed
Zandén, Cairo
Tel/Fax: 27342211 - 27365583



إبراهيم عبد الله السيد
مهندس الاستشارة
مكتب معامل الاستشارات الهندسية

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

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Reporting No. : 09-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	45

Signature

3 E Hana E Alsa Street
Zarqa, Amman
Tel/Fax: 27363021 - 27363083



مركز الدراسات والبحوث
للمواد والبناء
شماره: 27363021 - 27363083

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مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 
Dr. Mohamed El-Azab
2400 218-091-827

1 El Nile El Ahdal Street
Zamalek, Cairo
Tel/Fax: 27369231 - 27369262



مركز المعامل الاستشارية
الهندسية
مكتب معامل الاستشارات الهندسية
2400 218-091-827

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qons To Armanat
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	37.9	Max 50 %	—	—
0.425 mm (No. 40)	15.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	4.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature: 

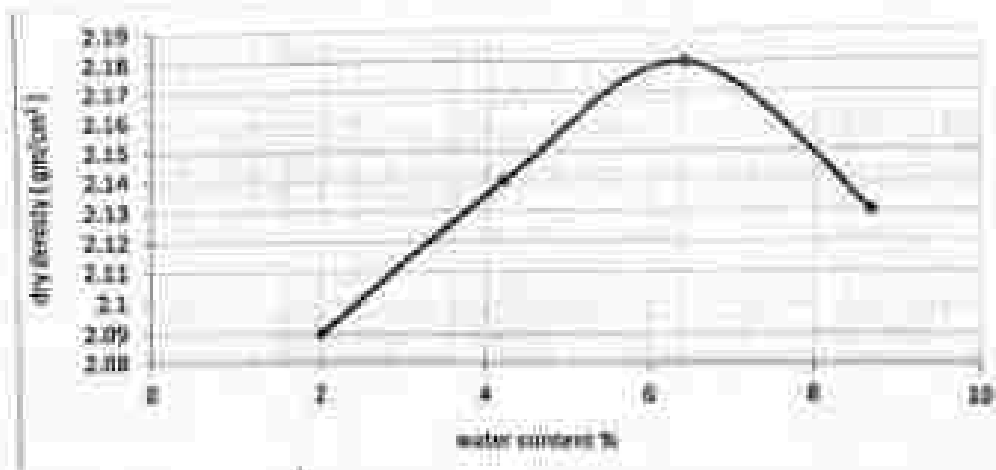
1 El Madi El Amir Street
Zaria, Cairo
Tel Fax: 3362771 - 3362063



مركز المختبرات الهندسية
القاهرة - القاهرة
تليفون : 3362771 - 3362063

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.18
- Optimum moisture content % : 6.4 %

Signature /

JEMAM E Alaa Street
Zoraba, Cairo
Tel/Fax: 3736224 - 3736263



28/08/2023
مكتب الدراسات
الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.30
3.18	0.125	4.16
3.81	0.150	4.77
4.45	0.175	5.22
5.08	0.200	5.47
6.35	0.250	5.58

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	47.8 %
	8.90	3.30	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.18 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load ~~50%~~ **50%**
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

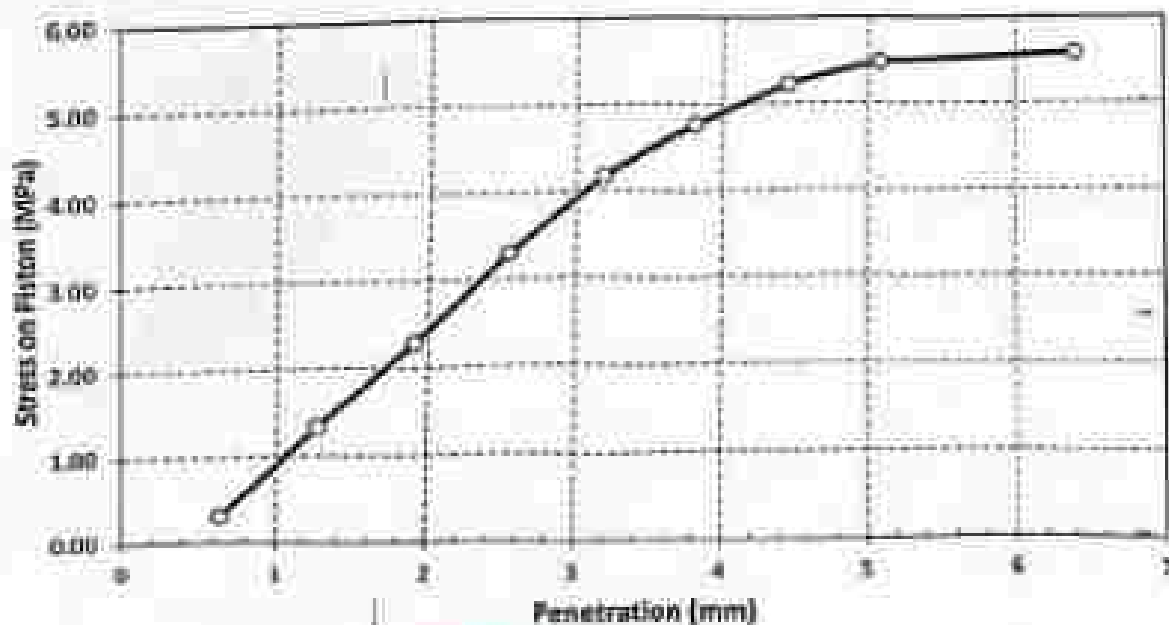
3 D-Mile El Alai Drive
Suez, Egypt
Tel Fax : 2230721 - 2730083



مكتب الاستشارات الهندسيه
الرياض - القاهرة
البريد الإلكتروني : info@cel.com.eg

Company Name : شركة الذبي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

[Handwritten Signature]

3 El Mahdi El Attia Street
Zamalek, Cairo
Tel-Fax : 27367071 - 2736868



إمارة القاهرة
القاهرة - القاهرة
شركة (CEL)

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Degree of compaction based on proctor test dated At

- Signature: 

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[illegible]

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - BSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
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Materials test

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3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature


The undersigned is the representative of the Client
تمثل الموقع أدناه العميل
213 - 552 - 087
011 - 552 - 087

3 El-Nasr El-Arabi Street
Zakaria, Giza
Tel & Fax: 27367231 - 27363093



إلى السيد المهندس
مركز القاهرة
للتحليلات
البيئية والكيميائية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-421

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	99.1
37.5	1.5	92.4
25	1	88.2
19	¾	83.4
12.50	½	78.5
9.50	3/8	70.1
4.75	4	56.2
2.00	10	37.9
0.425	40	15.2

Signature /


Engineer /

3 El Mah E Alsi Street
Zamalek, Cairo
Tel/Fax : 011527711 - 2755000



28 أغسطس 2023
مكتب الذهبى
011527711 - 2755000



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	4.5

Signature /

101 Main E And Street
Zamalek, Cairo
Tel/Fax (1156722) - (2730308)



مركز معمل الاستشارات
القاهرة - القاهرة
الهاتف : (1156722) - (2730308)

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature/

3-B Nile E-Abad Street
Zoraba, Cairo
Tel/Fax: 2736721 - 2736703



إدارة البناء والاساسات
الزراعة - القاهرة
الطريق - القاهرة - 2736721 - 2736703

Company Name : شركة الذهبى
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST: 642+100 E=32.924959, N=25.877402
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 24/08/2023
 Reporting Date : 28/08/2023
 Reporting No. : 09-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10).	37.9	Max 50 %	—	—
0.425 mm (No. 40).	15.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	4.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature / 

30 Miles El Hda Street
 Zewail, Cairo
 Tel/Fax: 2336723 - 2336723



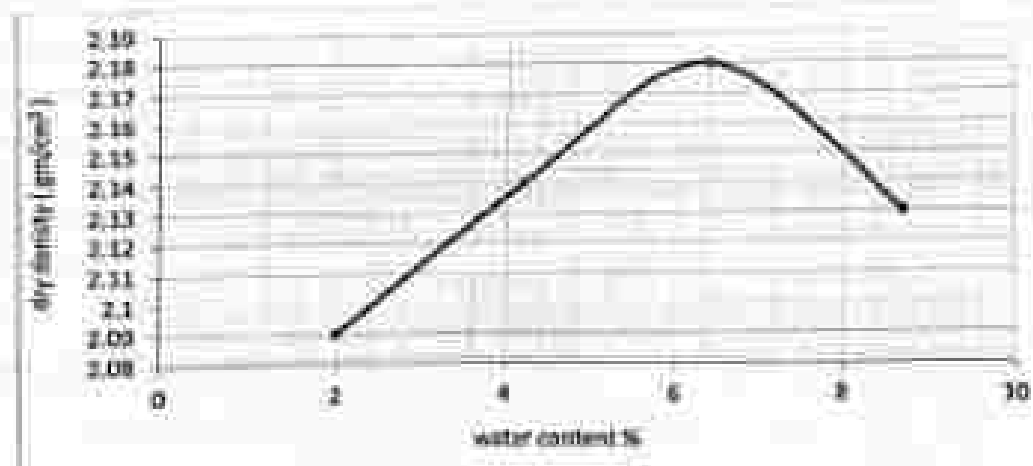
إدارة المختبر
 مركز زويل
 2336723 / 2336723

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الاهي
Project : Electric Express Train - HSR From Qous To Armat -
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.18
- Optimum moisture content % : 6.4 %

Signature

3 El Nilah El Atah Street
Zamalek, Cairo
Tel & Fax: 27367231 - 27360040

IAS
ACCREDITED
Testing Laboratory

إمارة القاهرة
القاهرة - الجيزة
مكتب الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 642+100 E=32.924959, N=25.877402
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 09-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.32
1.91	0.075	2.28
2.54	0.100	3.30
3.18	0.125	4.16
3.81	0.150	4.77
4.45	0.175	5.22
5.08	0.200	5.47
6.35	0.250	5.58

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	47.8 %
	6.90	3.30	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.18 \text{ (gm/cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 450 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page no 36.

Signature: 

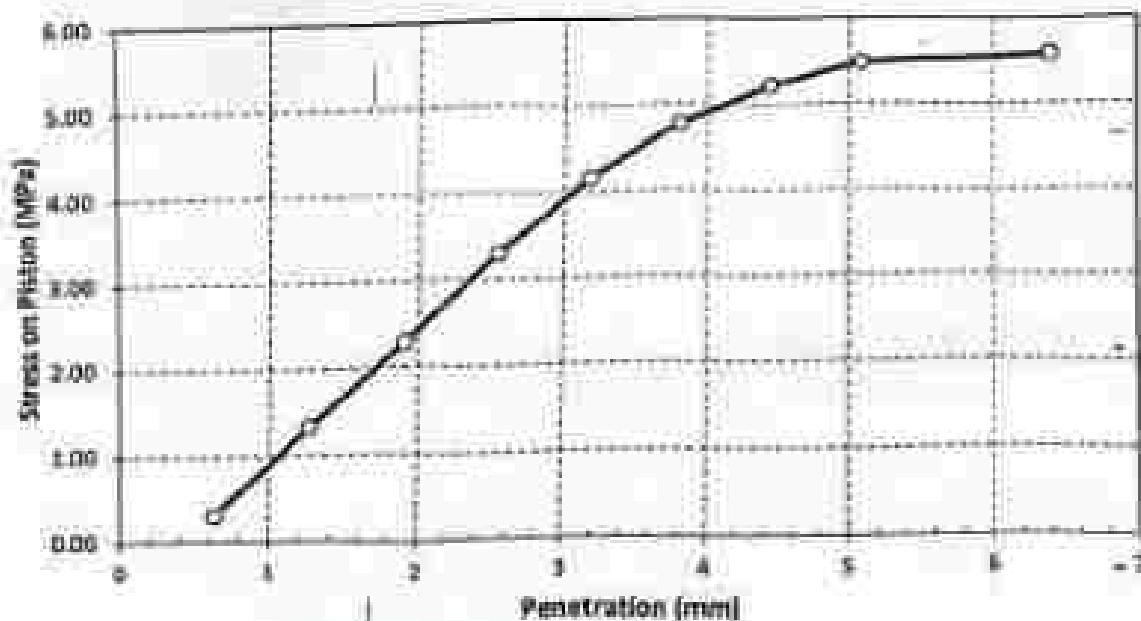
3 El Malek El Atad Street
Zarqa, Jord
Tel Fax: 07957231 - 07960093



3 El Malek El Atad Street
Zarqa, Jord
Tel Fax: 07957231 - 07960093

Company Name : شركة الأهلي
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST: 642+100 E=32.924959, N=25.877402
 Type of sample : Soil Embankment (Upper Embankment 0.0 M)
 Delivery Date : 24/08/2023
 Reporting Date : 28/08/2023
 Reporting No. : 09-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / 

Dr. El Mostafa El Mahi Ghann
 Zeynab, Cairo
 Tel/Fax: 33367521 - 3336388



إبراهيم محمد العبد
 فريق العمل
 33367521 - 3336388

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Testing Date : 03/09/2023
Soil type : Middle Embankment
Location : St From 641+620 To 641+720
Level : - 3 M
Report No. : 54

Compaction test by using Sand - Cone Test Method
ASTM D-1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+650	1058	2.22	5.3	2.11	95.6%	Comply
2	641+680	1404	2.20	5.3	2.09	95.1%	Comply
3	641+710	1063	2.24	5.5	2.12	96.5%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature : 


3 El-Mark El-Helwan
Zamalek, Cairo
Tel/Fax : 3760221 - 3760488

IAS
ACCREDITED
BY

المركز الهندسي
الاستشاري
مكتب معامل الاستشارات الهندسية



Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Quas To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Dear Gentleman,

Attached here with the delivered on 24 / 8 / 2023.

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature /

115 Midway St. 1st Floor
Darien, Conn.
Tel. Fax: 203-251-2700 • 203-251-2701




إدارة المختبر
مكتبه معامل
203-251-2700 • 203-251-2701

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.4
25	1	92.3
19	¾	89.1
12.50	½	80.6
9.50	3/8	70.6
4.75	4	59.4
2.00	10	40.9
0.425	40	25.1

Signature 
Mohamed El-Agha
210-731-237
210-731-237

3 El Mouna El Agha Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363359



إدارة المختبر
مركز القاهرة
للتحليلات
210-731-237

Scanned with CamScanner



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
2023/08/28

3 El Malek El Agha Street
Zamalek, Cairo
Tel. Fax : 23362221 - 23360663



في مكتب الاستشارات
الهندسية الذهبى
الرقم : 10 - 2023/08/28

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qoms To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.9	Max 50 %	—	—
0.425 mm (No. 40).	25.1	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	12.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



3 El Mina El Had Street
Zindagi, Cairo
Tel Fax: 27362211 - 27362053



مركز اختبار
مركز اختبار
مركز اختبار

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.30
1.27	0.050	1.42
1.91	0.075	2.43
2.54	0.100	3.45
3.18	0.125	4.41
3.81	0.150	5.12
4.45	0.175	5.73
5.08	0.200	6.04
6.35	0.250	6.24

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50 %
	6.90	3.45	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20 \text{ (gm./cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 K_s
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature : 

10 Mark E-Road Blvd
Zirahh, Cairo
Tel Fax: 2736231 - 2736233



مركز الدراسات والبحوث
مكتب القاهرة
مكتب الإسكندرية

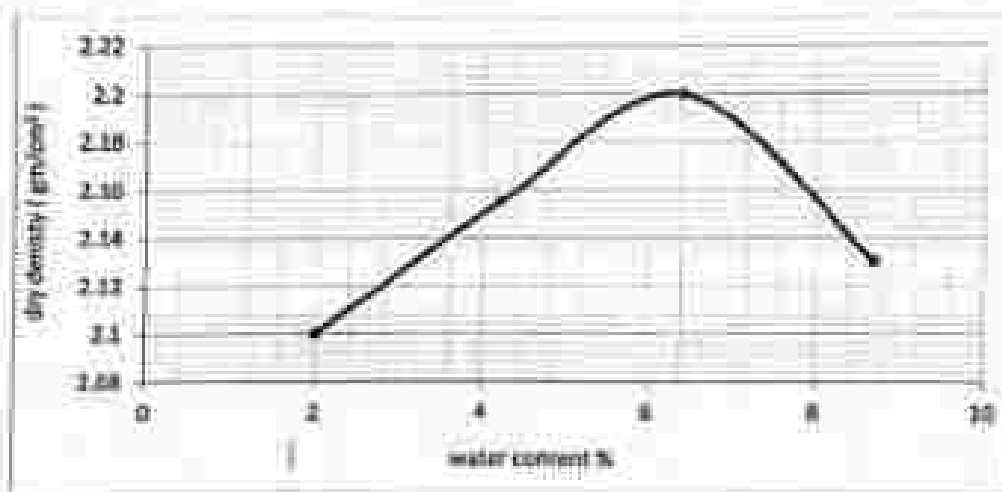
CEL

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Molsture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature

1 El Mahdy El Aini Street
Dokki, Cairo
Tel/Fax : 23662271 - 23662243

IAS
ACCREDITED
Quality Management

في مكتب الاستشارات
الهندسية
شركة الذهبى
23662271 - 23662243

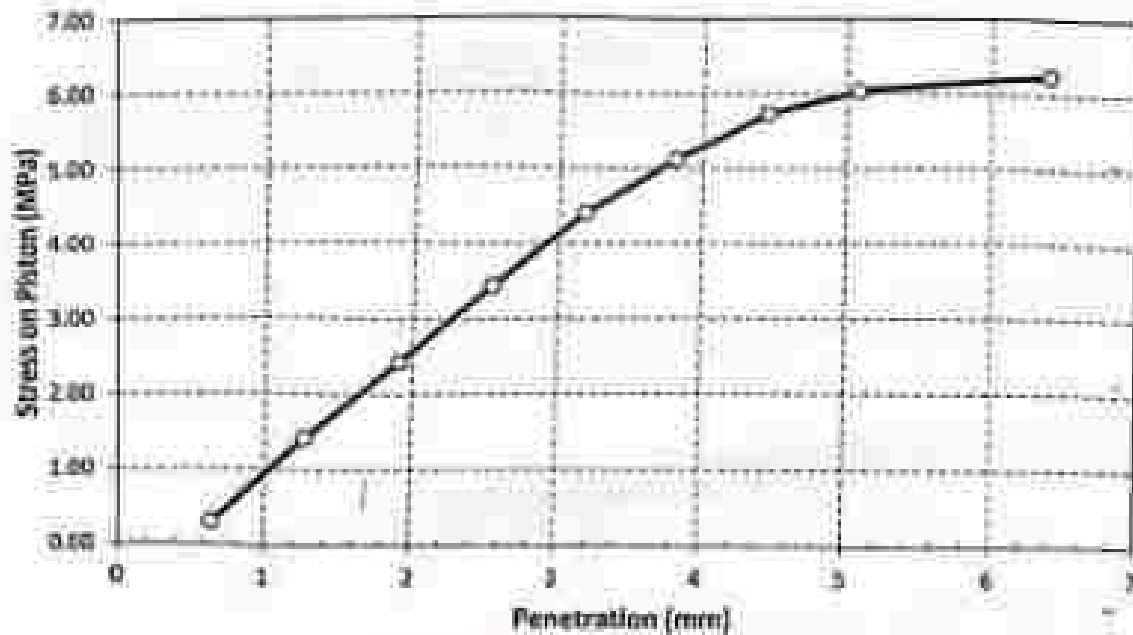
CEL

Consulting Engineering Bureau & Laboratories

مكتب محامل الاستشارات الهندسية

Company Name : شركة الألفي
Project : Electric Express Train – HSR From Qous To Armanat –
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Load Penetration Curve of CBR Test ASTM D-1883



Signature



3 El Masr El Atay Street
Zamalek, Cairo
Tel/Fax : 27360231 - 27360230



أ.م.ع. المهندس
أ.م.ع. المهندس
أ.م.ع. المهندس

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 03/09/2023
Soil type : Middle Embankment
Location : St From 641+000 To 641+160
Level : - 1.75 M
Report No. : 52

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+030	1644	2.29	5.5	2.17	98.4%	Comply
2	641+060	1058	2.22	5.3	2.11	95.8%	Comply
3	641+090	1065	2.23	5.5	2.12	96.3%	Comply
4	641+120	1404	2.20	5.5	2.09	95.0%	Comply
5	641+150	1647	2.20	5.3	2.09	95.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature : 

3 El Mina El Agha Street
Zagazig, Egypt
Tel/Fax : 77367001 - 77367002



إدارة المختبر
مركز التحليلات
البيئية والجيوتقنية



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأدهي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10


Dear Gentleman,

Attached here with the delivered on 24 / 8 / 2023

Materials test

1. Sieve analysis according to ASTM D-422
2. Material finer than sieve No. 200 according to ASTM D-1140,
3. Liquid limits and plasticity index of soil according to ASTM D-4318,
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature 
Mohamed El-Hadi
24/8/2023

5 El-Mah El-Hadi Street
Zewail, Cairo
Tel/Fax: 22367231 - 22367232



إلى السيد المحترم
المرسل: المهندس
المهندس: المهندس



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qina To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	100
37.5	1.5	98.4
25	1	92.3
19	3/4	89.1
12.50	1/2	80.6
9.50	3/8	70.6
4.75	4	39.4
2.00	10	40.9
0.425	40	25.1

Signature: 
The Engineer
Said El-Dokki
2023/08/28

Stamp of the office
Bureau, Cairo
Said El-Dokki - 1156303



إمضاء المهندس
سعيد الدققي
2023/08/28



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	12.5



3 El Mada El Had Street
Zandara, Cairo
Tel/Fax: 23360231 - 23360093



إدارة الهندسة
الاستشارات
الهندسية



Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armani -
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature: 
Dr. Hisham Al-Ashour
Head of Laboratory
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

3 El Malek El Arabi Street
Zamalek, Cairo
Tel/Fax: 27307501 - 27300080



Dr. Hisham Al-Ashour
Head of Laboratory
2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.9	Max 50 %	—	—
0.425 mm (No. 40).	25.1	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	12.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature

[Handwritten Signature]
219-504-527
219-504-527
219-504-527

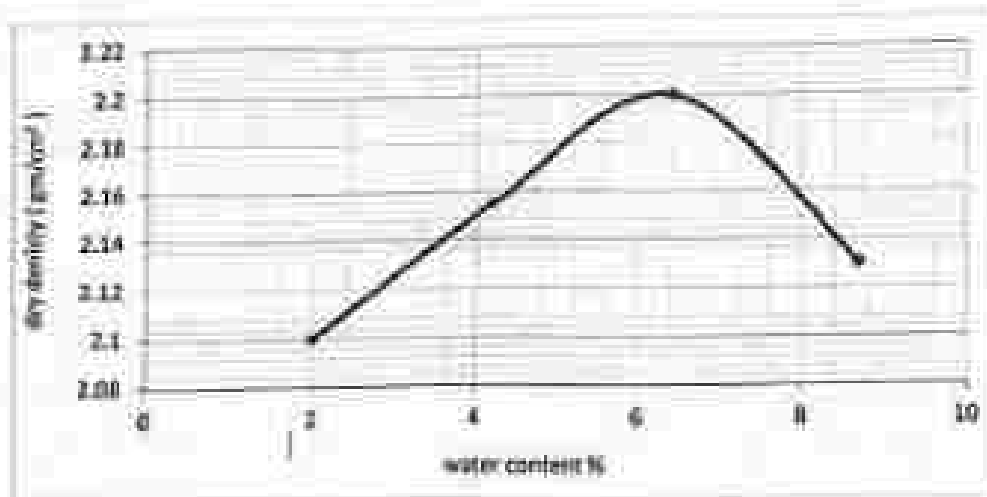
521 Main E- Road Street
Zaria, Cairo
SAFRI 2150121 - 2150100



في مكتب الهندسة
الهندسة المدنية
شركة معمل

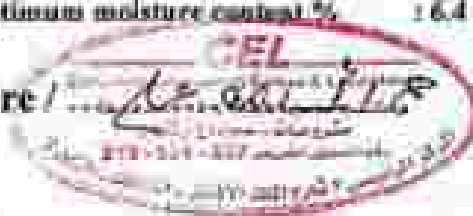
Company Name : شركة الزهبي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



3 El Mans El Mout Street
Zakaria, Cairo
Tel/Fax: 27367231 - 27363081



إدارة المختبر
الهندسة المدنية
الهندسة الجيوتقنية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 24/08/2023
Reporting Date : 28/08/2023
Reporting No. : 10

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.30
1.27	0.050	1.42
1.91	0.075	2.43
2.54	0.100	3.45
3.18	0.125	4.41
3.81	0.150	5.12
4.45	0.175	5.73
5.08	0.200	6.04
6.35	0.250	6.24

CBR/Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	50 %
	6.30	3.45	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20 (gms /cm³)
At = 6.4 % optimum water content.
- 3- Surcharge load = 5035g
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

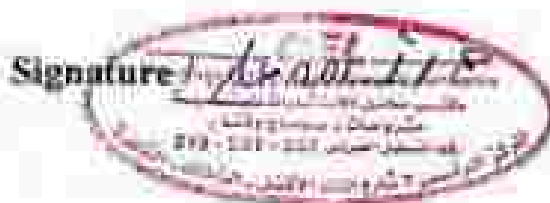
Signature / 

3 El Most El Atai Street
Zamalek, Cairo
Tel/Fax : 3366722 - 3366660



مركز بحوث وتطوير
البنية التحتية
الهندسية

Load Penetration Curve of CBR Test



IAS
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9 من الملك | التمساح
 10 من الملك | التمساح
 11 من الملك | التمساح



Consulting Engineering Bureau & Laboratories
مكتب معمل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Arment

Testing Date : 06/09/2023

Soil type : Middle Embankment

Location : St From 641+440 To 641+620

Level : - 3 M

Report No. : 55

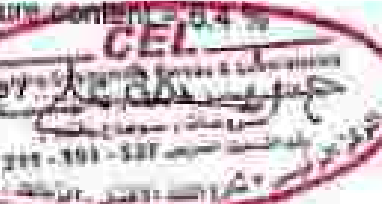
Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+470	2046	2.22	5.3	2.10	95.2%	Comply
2	641+500	1856	2.22	5.5	2.10	95.2%	Comply
3	641+530	1353	2.22	5.5	2.11	95.4%	Comply
4	641+560	1544	2.22	5.3	2.10	95.2%	Comply
5	641+590	1398	2.21	5	2.11	95.3%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.4 %

Signature :


Engineer Mohamed El-Masry
Consulting Engineering Bureau & Laboratories
249 - 191 - 187 - 186 - 185 - 184 - 183 - 182 - 181 - 180 - 179 - 178 - 177 - 176 - 175 - 174 - 173 - 172 - 171 - 170 - 169 - 168 - 167 - 166 - 165 - 164 - 163 - 162 - 161 - 160 - 159 - 158 - 157 - 156 - 155 - 154 - 153 - 152 - 151 - 150 - 149 - 148 - 147 - 146 - 145 - 144 - 143 - 142 - 141 - 140 - 139 - 138 - 137 - 136 - 135 - 134 - 133 - 132 - 131 - 130 - 129 - 128 - 127 - 126 - 125 - 124 - 123 - 122 - 121 - 120 - 119 - 118 - 117 - 116 - 115 - 114 - 113 - 112 - 111 - 110 - 109 - 108 - 107 - 106 - 105 - 104 - 103 - 102 - 101 - 100 - 99 - 98 - 97 - 96 - 95 - 94 - 93 - 92 - 91 - 90 - 89 - 88 - 87 - 86 - 85 - 84 - 83 - 82 - 81 - 80 - 79 - 78 - 77 - 76 - 75 - 74 - 73 - 72 - 71 - 70 - 69 - 68 - 67 - 66 - 65 - 64 - 63 - 62 - 61 - 60 - 59 - 58 - 57 - 56 - 55 - 54 - 53 - 52 - 51 - 50 - 49 - 48 - 47 - 46 - 45 - 44 - 43 - 42 - 41 - 40 - 39 - 38 - 37 - 36 - 35 - 34 - 33 - 32 - 31 - 30 - 29 - 28 - 27 - 26 - 25 - 24 - 23 - 22 - 21 - 20 - 19 - 18 - 17 - 16 - 15 - 14 - 13 - 12 - 11 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 - 0

3 El Mah El Amir Street
Zamalek, Cairo
Tel/Fax: 27307531 - 27307550



شركة الذهبى
مكتب معمل الاستشارات الهندسية
249 - 191 - 187 - 186 - 185 - 184 - 183 - 182 - 181 - 180 - 179 - 178 - 177 - 176 - 175 - 174 - 173 - 172 - 171 - 170 - 169 - 168 - 167 - 166 - 165 - 164 - 163 - 162 - 161 - 160 - 159 - 158 - 157 - 156 - 155 - 154 - 153 - 152 - 151 - 150 - 149 - 148 - 147 - 146 - 145 - 144 - 143 - 142 - 141 - 140 - 139 - 138 - 137 - 136 - 135 - 134 - 133 - 132 - 131 - 130 - 129 - 128 - 127 - 126 - 125 - 124 - 123 - 122 - 121 - 120 - 119 - 118 - 117 - 116 - 115 - 114 - 113 - 112 - 111 - 110 - 109 - 108 - 107 - 106 - 105 - 104 - 103 - 102 - 101 - 100 - 99 - 98 - 97 - 96 - 95 - 94 - 93 - 92 - 91 - 90 - 89 - 88 - 87 - 86 - 85 - 84 - 83 - 82 - 81 - 80 - 79 - 78 - 77 - 76 - 75 - 74 - 73 - 72 - 71 - 70 - 69 - 68 - 67 - 66 - 65 - 64 - 63 - 62 - 61 - 60 - 59 - 58 - 57 - 56 - 55 - 54 - 53 - 52 - 51 - 50 - 49 - 48 - 47 - 46 - 45 - 44 - 43 - 42 - 41 - 40 - 39 - 38 - 37 - 36 - 35 - 34 - 33 - 32 - 31 - 30 - 29 - 28 - 27 - 26 - 25 - 24 - 23 - 22 - 21 - 20 - 19 - 18 - 17 - 16 - 15 - 14 - 13 - 12 - 11 - 10 - 9 - 8 - 7 - 6 - 5 - 4 - 3 - 2 - 1 - 0

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qons To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31/8/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature /

3 El Malek El Alad Street
Zerokh, Cairo
Tel& Fax: 27367211 - 27363083



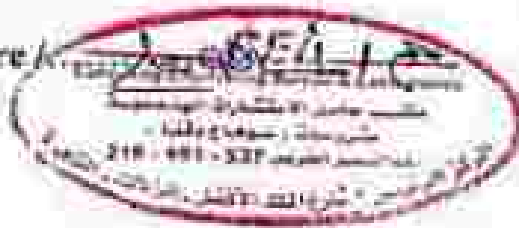
إدارة معمل الاستشارات
الزمالك - القاهرة
الهاتف : 27367211
الفاكس : 27363083

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Results of liquid limit and plasticity index
of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature 

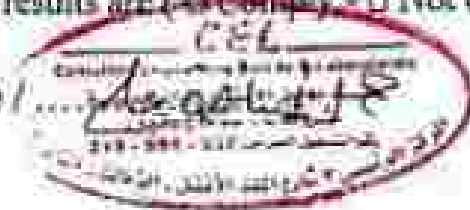
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armut
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	41.2	Max 50 %	—	—
0.425 mm (No. 40)	28.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (~~Not~~ Comply - ☒ Not Comply) with specifications limits

Signature /


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215 - 588 - 517
شركة الذهبى للاستشارات الهندسية - القاهرة

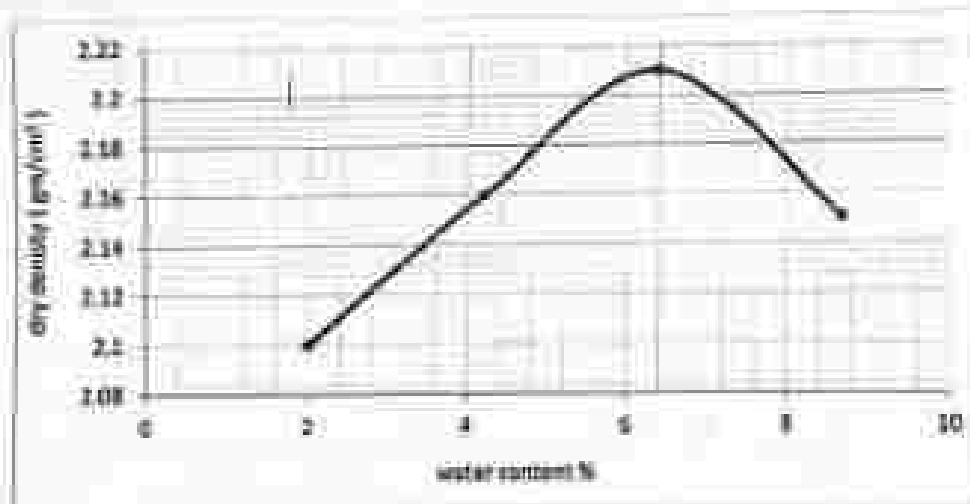
J E Maki E-About Show
Zemzet, Cairo
Tel Fax: 215/5231 - 215/2203



إدارة المختبر
إبراهيم محمود
مهندس / Engineer

Company Name : شركة النخيل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture - Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature



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Zamalek, Cairo
Tel/Fax: 27365231 - 27365232



مختبر
مختبر
مختبر

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm /cm}^3\text{)}$
At = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

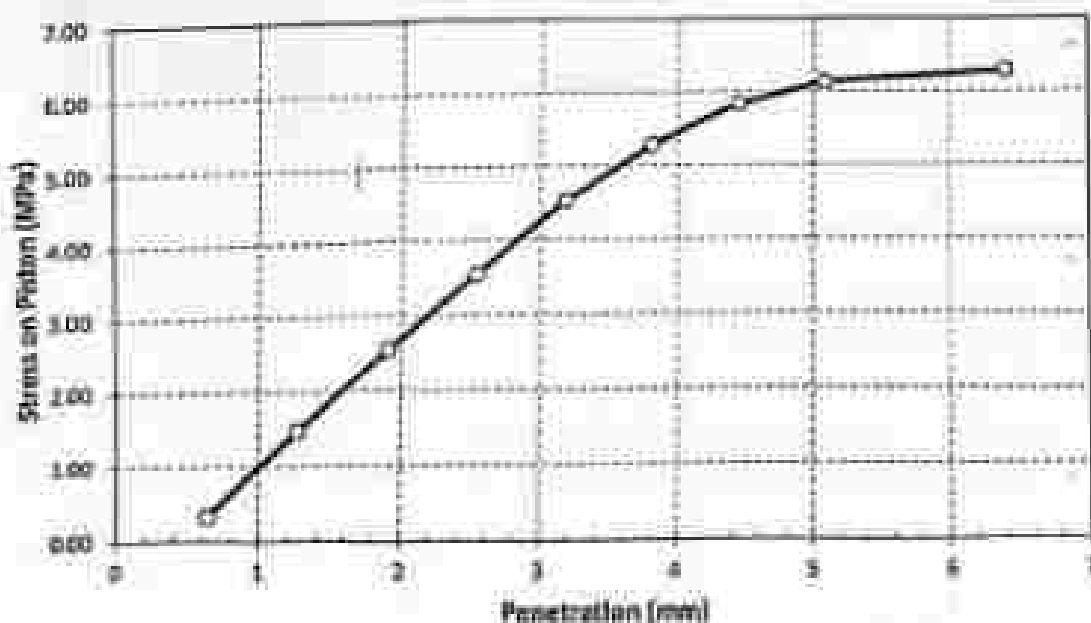
1 P. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238



Dr. Mounir E. Al-Sayid
Director, Cairo
Tel/Fax: 2285237 - 2285238

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1583



Signature _____



3 E. 2nd St. E. Apt. 202
 Fort Collins, Colo.
 Tel./Fax: 970/221-1111 • JFW@FCCO.EDU



* مركز البحوث
 * مركز البحوث
 * مركز البحوث

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والاختبار

Company Name : شركة النقي
Project : Electric Express Train - HSR From Qous To Arment
Testing Date : 07/09/2023
Soil type : Middle Embankment
Location : St From 641+160 To 641+300
Level : -2 M
Report No. : 58

Compaction test by using Sand - Cone Test Method
ASTM D- 1556

Test#	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptanc e
1	641+180	1792	2.25	5.5	2.13	96.6%	Comply
2	641+230	1698	2.24	5.3	2.13	96.3%	Comply
3	641+260	1374	2.25	5.5	2.14	96.5%	Comply
4	641+290	1058	2.22	5.3	2.10	95.1%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 6.4%
-

Signature / 
Engineer / 
2023/09/07
218-891-137

HEMMA T. Al-Hadi
General Clerk
Tel: 218-891-137

IAS
Engineering & Construction

2023/09/07
218-891-137

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Dear Gentleman,

Attached here with the delivered on 31 / 8 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.6
37.5	1.5	96.1
25	1	91.3
19	¾	87.2
12.50	½	79.2
9.50	3/8	71.2
4.75	4	56.9
2.00	10	41.2
0.425	40	28.2

Signature 
مكتب معامل الاستشارات الهندسية
شركة الذهبى
رقم الترخيص الهندسى ١٤٤١ - ١٤٤٢ - ١٤٤٣
الشارع الرئيسى ٢ شارع الهندسة - القاهرة



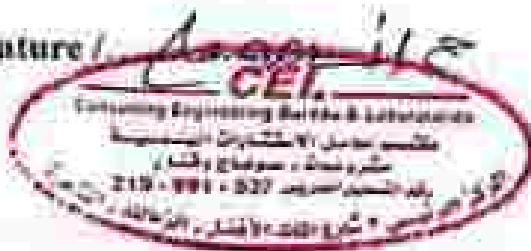
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	11.9

Signature /



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Zewail, Cairo.
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إلى السيد المهندس
إلى السيد المهندس
إلى السيد المهندس

CEL

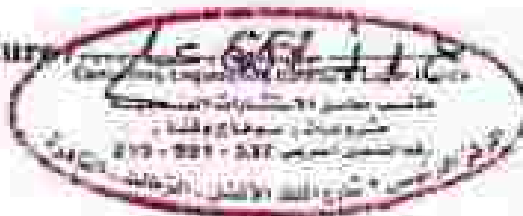
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature



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Zamalek, Cairo
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مركز فليلك الاندس
فرعك الهندسي
الهندسة المدنية



Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

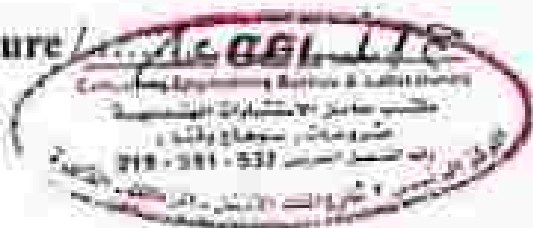
Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10).	41.2	Max 50 %	-----	-----
0.425 mm (No. 40).	28.2	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☒ Comply - ☐ Not Comply) with specifications limits

Signature /



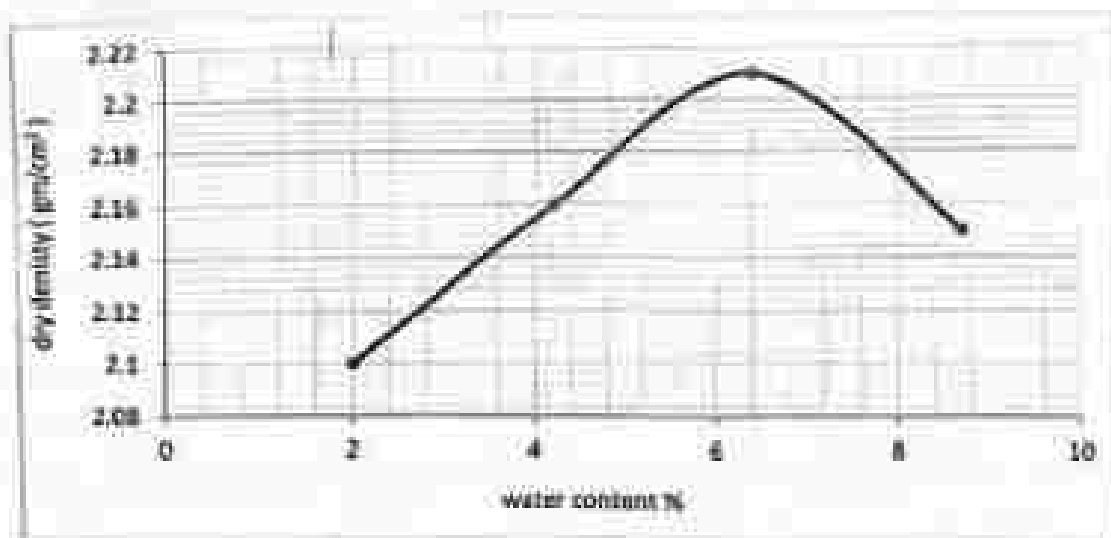
S E Mousa E Attia Elwan,
Technical Exam



أ.م.ع. م.ع.ع.ع.ع.ع.
م.ع.ع.ع.ع.ع.

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.47
1.91	0.075	2.54
2.54	0.100	3.55
3.18	0.125	4.51
3.81	0.150	5.27
4.45	0.175	5.83
5.08	0.200	6.14
6.35	0.250	6.29

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.99	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm / cm}^3\text{)}$
At $\approx 6.4 \%$ optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for mid and low embankments, according project spec page No 36.

Signature

Dr. El Mostafa El Ghayoury
Zorah, Cairo
Tel & Fax: 02047531 - 02047532



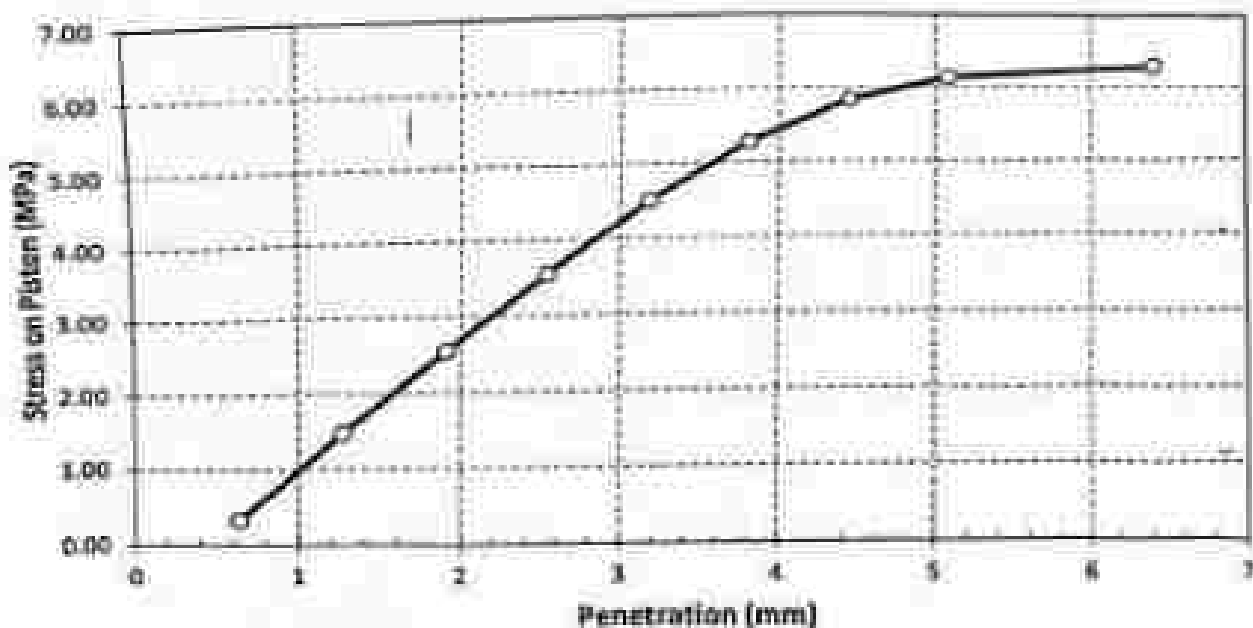
Dr. El Mostafa El Ghayoury
Zorah, Cairo
Tel & Fax: 02047531 - 02047532

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 31/08/2023
Reporting Date : 04/09/2023
Reporting No. : 10-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
218 - 211 - 237
القاهرة - مصر

3 El Madi El Atad Street
Zakaria, Cairo
T/A Fax : 27162331 - 27162350

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Testing & Calibration

مركز اختبار المعايير
التركيبة : القاهرة
تليفون : 27162331 - 27162350

Company Name : شركة الذهبى

Project : Electric Express Train – HSR From Qous To Armant

Testing Date : 12/09/2023

Soil type : Middle Embankment

Location : St From 641+160 To 641+300

Level : -2 M

Report No. : 58

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+180	1792	2.25	5.5	2.13	97.0%	Comply
2	641+230	1698	2.24	5.3	2.13	96.8%	Comply
3	641+260	1374	2.25	5.5	2.14	97.1%	Comply
4	641+290	1058	2.22	5.5	2.10	95.6%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

• Signature: 

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Zorah, Cairo
Tel/Fax: 2734720 - 2734701



إلى السيد المهندس
م. محمد عبد الله
م. محمد عبد الله

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant -
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Dear Gentleman,

Attached here with the delivered on 7/9/2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken.

Signature /


The stamp is an oval-shaped red ink stamp. It contains the text 'CEL' at the top, followed by 'Consulting Engineering Bureau & Laboratories' in English and Arabic. Below that is a signature in Arabic script, and at the bottom are the phone numbers '27360221' and '27360083'.

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.6

Signature /



3 E. Malek E. Aldal Street
Zayed, Cairo
Tel/Fax : 27762021 - 27762000



3 شارع مالك عبد الدال
زayed، القاهرة
هاتف / فاكس : 27762021 - 27762000

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	90.1
19	¾	84.2
12.50	½	77.2
9.50	3/8	71.5
4.75	4	59.9
2.00	10	46.3
0.425	40	28.0

Signature /



3 El Mulek El-Rous Street,
Zamalek, Cairo
Tel/Fax: 27362521 - 27362001



م. محمد العبدى
إبراهيم الشاهد
م. محمد العبدى
TEL: 011-27362521

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature /



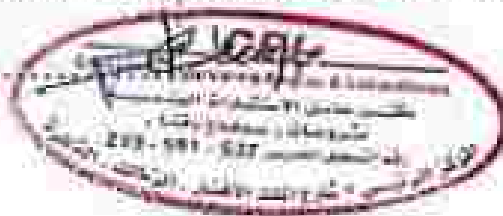
Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-a)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	46.3	Max 50 %	—	—
0.425 mm (No. 40)	28.0	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.6	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



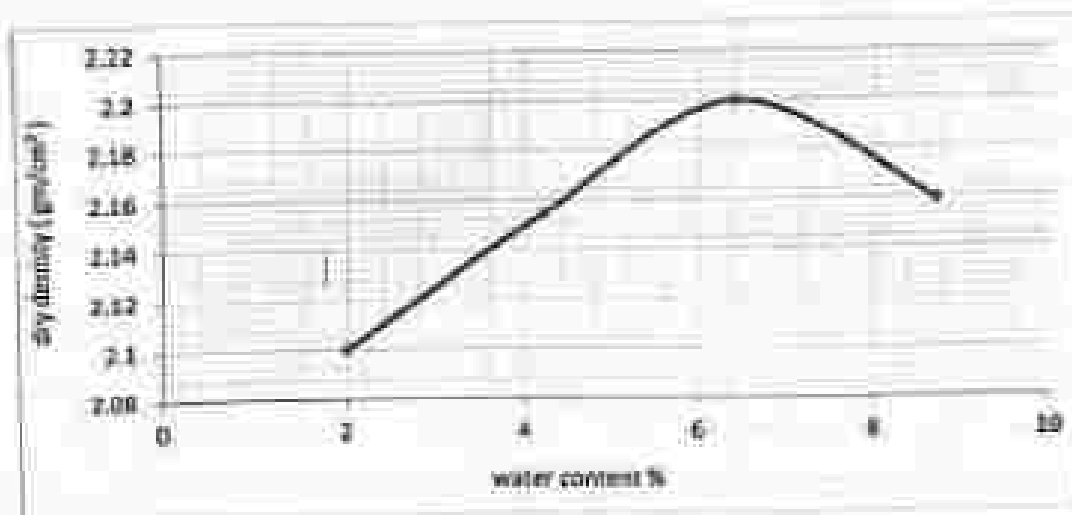
J E-Mohr E-Abdo Street
Zamalek, Cairo
Tel/Fax: 27362207 - 27362203



إمارة القاهرة
القاهرة
الهاتف 273-581-527

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.20
- Optimum moisture content % : 6.4 %

Signature /



Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.60
2.54	0.100	3.60
3.18	0.125	4.56
3.81	0.150	5.31
4.45	0.175	6.09
5.08	0.200	6.56
6.35	0.250	7.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52.1 %
	6.98	3.60	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.20(gm /cm³)
A1 = 6.4 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /

3 El Mallah E. A. M.
Zirak, Cairo
Tel/Fax: 23307237 - 23307661



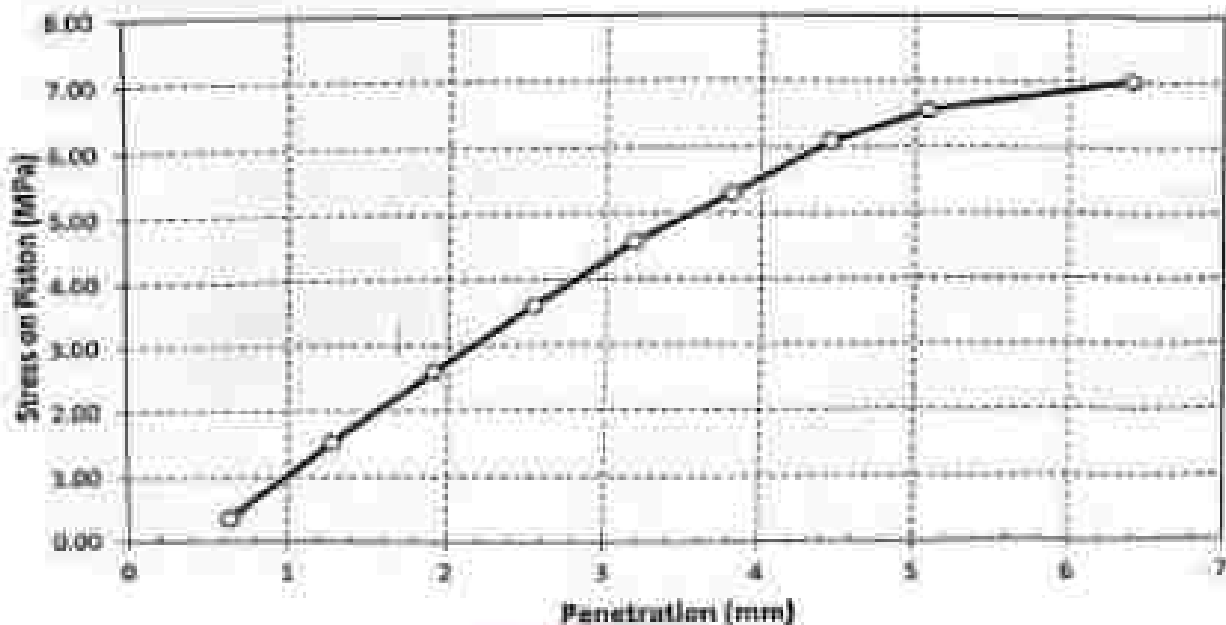
أحمد محمد الجبيل
إبراهيم الجبيل
الهندسة والبناء
23307237 - 23307661

CEL

Consulting Engineering Bureau & Laboratories
مكتب محال الاستشارات الهندسية

Company Name : شركة الذهبي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0,0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3-2

Load Penetration Curve of CBR Test ASTM D-1883



Signature /



3 D Mohd El Attar Elmer
Zaria, Cam
Tel/Fax : 27349531 - 27349532

IAS

مكتب محال الاستشارات الهندسية
الرياض - المملكة العربية السعودية
الهاتف : 27349531 - 27349532

CEL

Consulting Engineering Bureau & Laboratories
مكتبه معامل الاستشارات الهندسية

Company Name : شركة الدقي
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 16/09/2023
Soil type : Middle Embankment
Location : St From 641+200 to 641+300
Level : -1.5 M
Report No. : 63

**Compaction test by using Sand – Cone Test Method
ASTM D- 1555**

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+220	1826	2.24	6	2.11	95.9%	Comply
2	641+240	1440	2.23	6.4	2.10	95.2%	Comply
3	641+260	1633	2.23	6	2.11	95.7%	Comply
4	641+280	1042	2.28	5.8	2.16	98.1%	Comply

Degree of compaction based on proctor test dated A1

Max. dry density =2.18 gm/cm³

Optimum moisture content =5.4%

Signature



3 El Maza El Ahdal Street
Zamalek, Cairo
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شركة الدقي
مركز القاهرة
الهاتف 23367231 - 23363283

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman ,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	¾	84.4
12.50	½	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Consulting Engineering Bureau & Laboratories
Signature: 
278 - 281 - 282
شارع محمد عبد الوهاب - القاهرة

JEMila E Atou Street
Zaraka, Cairo
Tel/Fax: 2230231 - 2230308



إلى مكتب المختبر
قريّة القاهرة
شماره التليفون : 22302311

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

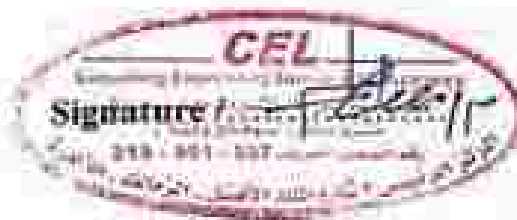
Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	9.9


Signature *[Handwritten Signature]*

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qons To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



Company Name : شركة الاهي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	45.9	Max 50 %	—	—
0.425 mm (No. 40).	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 

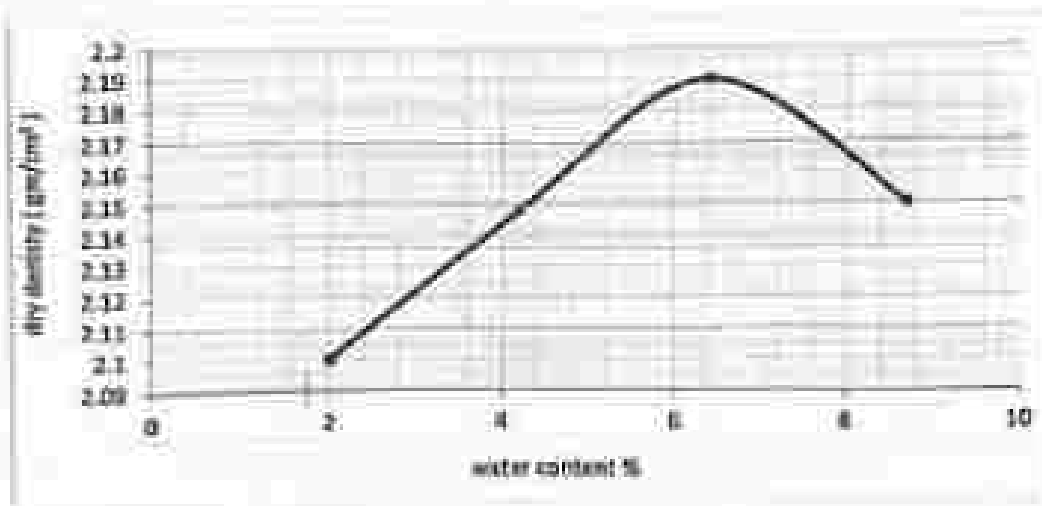
3 El Mouni El Atoul Street
Zamalek, Cairo
Tel/Fax: 27367331 - 27363683



مركز المعايير
البيانات - القاهرة
البريد الإلكتروني: info@cel.com.eg

Company Name : شركة الذهبى
Project : Electric Express Train – HSR From Qous To Armant
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Moisture – Density relation of soil
Test result (Modified proctor test)
ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature : 
215 - 458 / 422 / 423 / 424 / 425 / 426 / 427 / 428 / 429 / 430 / 431 / 432 / 433 / 434 / 435 / 436 / 437 / 438 / 439 / 440 / 441 / 442 / 443 / 444 / 445 / 446 / 447 / 448 / 449 / 450 / 451 / 452 / 453 / 454 / 455 / 456 / 457 / 458 / 459 / 460 / 461 / 462 / 463 / 464 / 465 / 466 / 467 / 468 / 469 / 470 / 471 / 472 / 473 / 474 / 475 / 476 / 477 / 478 / 479 / 480 / 481 / 482 / 483 / 484 / 485 / 486 / 487 / 488 / 489 / 490 / 491 / 492 / 493 / 494 / 495 / 496 / 497 / 498 / 499 / 500 / 501 / 502 / 503 / 504 / 505 / 506 / 507 / 508 / 509 / 510 / 511 / 512 / 513 / 514 / 515 / 516 / 517 / 518 / 519 / 520 / 521 / 522 / 523 / 524 / 525 / 526 / 527 / 528 / 529 / 530 / 531 / 532 / 533 / 534 / 535 / 536 / 537 / 538 / 539 / 540 / 541 / 542 / 543 / 544 / 545 / 546 / 547 / 548 / 549 / 550 / 551 / 552 / 553 / 554 / 555 / 556 / 557 / 558 / 559 / 560 / 561 / 562 / 563 / 564 / 565 / 566 / 567 / 568 / 569 / 570 / 571 / 572 / 573 / 574 / 575 / 576 / 577 / 578 / 579 / 580 / 581 / 582 / 583 / 584 / 585 / 586 / 587 / 588 / 589 / 590 / 591 / 592 / 593 / 594 / 595 / 596 / 597 / 598 / 599 / 600 / 601 / 602 / 603 / 604 / 605 / 606 / 607 / 608 / 609 / 610 / 611 / 612 / 613 / 614 / 615 / 616 / 617 / 618 / 619 / 620 / 621 / 622 / 623 / 624 / 625 / 626 / 627 / 628 / 629 / 630 / 631 / 632 / 633 / 634 / 635 / 636 / 637 / 638 / 639 / 640 / 641 / 642 / 643 / 644 / 645 / 646 / 647 / 648 / 649 / 650 / 651 / 652 / 653 / 654 / 655 / 656 / 657 / 658 / 659 / 660 / 661 / 662 / 663 / 664 / 665 / 666 / 667 / 668 / 669 / 670 / 671 / 672 / 673 / 674 / 675 / 676 / 677 / 678 / 679 / 680 / 681 / 682 / 683 / 684 / 685 / 686 / 687 / 688 / 689 / 690 / 691 / 692 / 693 / 694 / 695 / 696 / 697 / 698 / 699 / 700 / 701 / 702 / 703 / 704 / 705 / 706 / 707 / 708 / 709 / 710 / 711 / 712 / 713 / 714 / 715 / 716 / 717 / 718 / 719 / 720 / 721 / 722 / 723 / 724 / 725 / 726 / 727 / 728 / 729 / 730 / 731 / 732 / 733 / 734 / 735 / 736 / 737 / 738 / 739 / 740 / 741 / 742 / 743 / 744 / 745 / 746 / 747 / 748 / 749 / 750 / 751 / 752 / 753 / 754 / 755 / 756 / 757 / 758 / 759 / 760 / 761 / 762 / 763 / 764 / 765 / 766 / 767 / 768 / 769 / 770 / 771 / 772 / 773 / 774 / 775 / 776 / 777 / 778 / 779 / 780 / 781 / 782 / 783 / 784 / 785 / 786 / 787 / 788 / 789 / 790 / 791 / 792 / 793 / 794 / 795 / 796 / 797 / 798 / 799 / 800 / 801 / 802 / 803 / 804 / 805 / 806 / 807 / 808 / 809 / 810 / 811 / 812 / 813 / 814 / 815 / 816 / 817 / 818 / 819 / 820 / 821 / 822 / 823 / 824 / 825 / 826 / 827 / 828 / 829 / 830 / 831 / 832 / 833 / 834 / 835 / 836 / 837 / 838 / 839 / 840 / 841 / 842 / 843 / 844 / 845 / 846 / 847 / 848 / 849 / 850 / 851 / 852 / 853 / 854 / 855 / 856 / 857 / 858 / 859 / 860 / 861 / 862 / 863 / 864 / 865 / 866 / 867 / 868 / 869 / 870 / 871 / 872 / 873 / 874 / 875 / 876 / 877 / 878 / 879 / 880 / 881 / 882 / 883 / 884 / 885 / 886 / 887 / 888 / 889 / 890 / 891 / 892 / 893 / 894 / 895 / 896 / 897 / 898 / 899 / 900 / 901 / 902 / 903 / 904 / 905 / 906 / 907 / 908 / 909 / 910 / 911 / 912 / 913 / 914 / 915 / 916 / 917 / 918 / 919 / 920 / 921 / 922 / 923 / 924 / 925 / 926 / 927 / 928 / 929 / 930 / 931 / 932 / 933 / 934 / 935 / 936 / 937 / 938 / 939 / 940 / 941 / 942 / 943 / 944 / 945 / 946 / 947 / 948 / 949 / 950 / 951 / 952 / 953 / 954 / 955 / 956 / 957 / 958 / 959 / 960 / 961 / 962 / 963 / 964 / 965 / 966 / 967 / 968 / 969 / 970 / 971 / 972 / 973 / 974 / 975 / 976 / 977 / 978 / 979 / 980 / 981 / 982 / 983 / 984 / 985 / 986 / 987 / 988 / 989 / 990 / 991 / 992 / 993 / 994 / 995 / 996 / 997 / 998 / 999 / 1000

3 E-Mark, E-Armat Street
Zamalek, Cairo
Tel/Fax: 27367231 - 27363093



في مكتب المعامل
في مكتب المعامل
في مكتب المعامل
في مكتب المعامل

Company Name : شركة الذهبي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E=492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	52 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At ≈ 6.4 % optimum water content.
- 3- Surcharge used 4.50 Kg.
- 4- CBR ≥ 10 for middle and lower embankments according project spec page No 35.

Signature _____

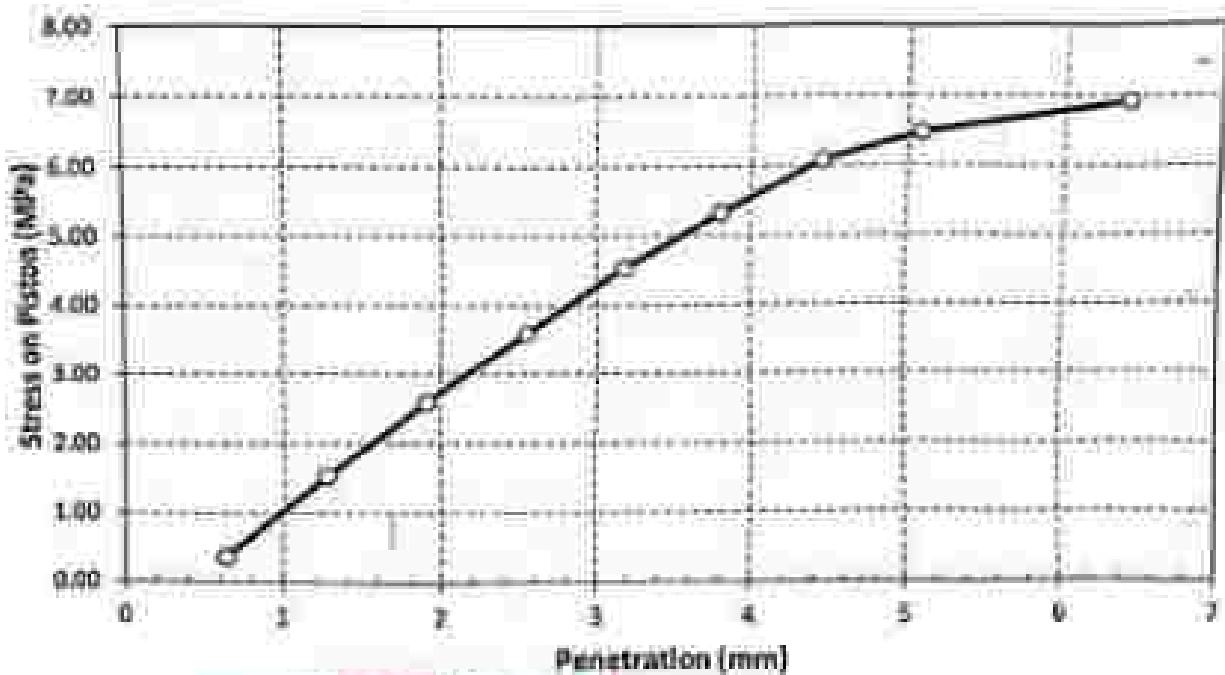
10 Malek
Dr. Malek Gani
Tel/Fax: 27367221 - 27367662



إبراهيم محمد الجليلي
إبراهيم الجليلي
مهندس - مقيم

Company Name : شركة الذهبى
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test
ASTM D-1883



Signature: 
2023-09-12
CEL

Contents : شركة الاهلي للمقاولات والتوريدات المعمارية :

Project : Electric Traction Tests - Sector (2) - Giza to Asyut.
Subject : Determine the deformation and strength characteristics of soil by the
plate loading test according specifications DIN 18126/2312-04 and project requirements
Test Location : Station 541+230 to 541+300
Station : 541+240
Level : A.S
Test Code : 150502023
Report Date : 15/05/2023
Type of soil : Original earth
Report No. : 1

Dear Gentlemen,

According to the above mentioned subject the test performed as follows:-

Apparatus

1. Loading plates consists of two plates with 300 mm and 200 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel strips/plates with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Dial indicator measuring device with scale vertically 750 for (0/100mm)
7. Reaction loading system by roller-compass with weight approximately 12 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clear the ground surface area to the required level with undisturbed soil
2. Install loading plates 300 mm and 200 mm diameter, Hydraulic jack and 3 dial gauges
3. Prior to testing the test setup preloading about 20 seconds.
4. The dial-gauge and the dial-gauge shall be zeroed out
5. For a 300 mm loading plate, the test values are 3.2 kN/m²
6. The load shall be applied in six stages, in approximately equal increments, with the required maximum vertical stress is reached.
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be released in 3 stages, i.e. 33 %, 25 %, and approximately 2 % of the maximum load.
9. Following unloading, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the percentage stage of the first cycle (as final test load is not reached).
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. The test report content the following:-

- Location of test site - Dimension of loading plate.
- Measuring device used - Type of soil.
- Type of Binding material below the plate -Weathering condition.
- Time and date of measurements - Unusual observation made during test.
- Dial gauge reading and corresponding normal stress - Loading-settlement curve.
- Description of the soil condition below the plate after testing.

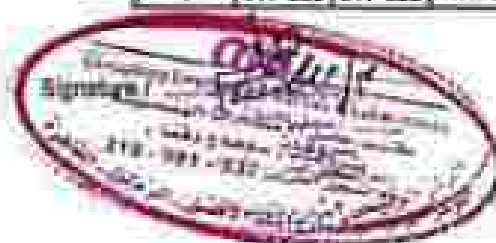
Result

- Type of soil : Original earth
- Job requirement : $E_{vd} = 40 \text{ MPa}$

Item	Description
Type of loading material below the plate	Water of soil
Plate Diameter (mm)	300
Rate of measurement	1.142mm/300s
Unusual observation made during test	NO
Description of the soil condition below the plate after testing	No deformation

Evaluation and representation of results

Trial No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{vd}/E_{vs} Ratio
	From	To			E_{vd} (MPa)	E_{vd} (Mpa)	
1	041+220	041+300	041+240	-1.2	33.8	140.7	4.13



Company Name : شركة الأهلي للمقاولات والتوريدات المعمورة
Project : Electric Express Train - Sector (2) - Quesna Area
Test Date : 16/09/2023
Report date : 19/09/2023
Station : 641+340
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
004 18134

Loading Stage (1)

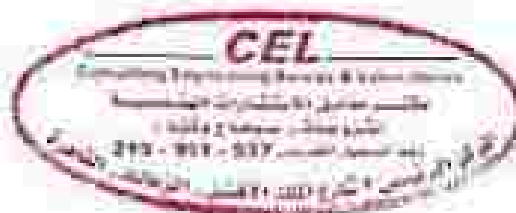
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	15.00	0.00	15.00	0.00	0.00
1	0.83	15.20	0.75	15.25	0.70	0.74
2	1.66	15.45	1.50	15.50	1.45	1.40
3	2.50	15.65	1.80	15.65	1.75	2.00
4	3.33	15.85	2.30	15.75	2.00	2.50
5	4.17	16.05	2.55	15.95	2.60	2.87
6	5.00	16.25	2.40	16.20	2.60	3.64

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	17.45	2.30	16.30	2.60	3.00
2	1.66	17.25	2.35	16.05	2.45	2.64
3	0.83	17.05	2.35	15.85	2.92	2.40

Loading Stage (2)

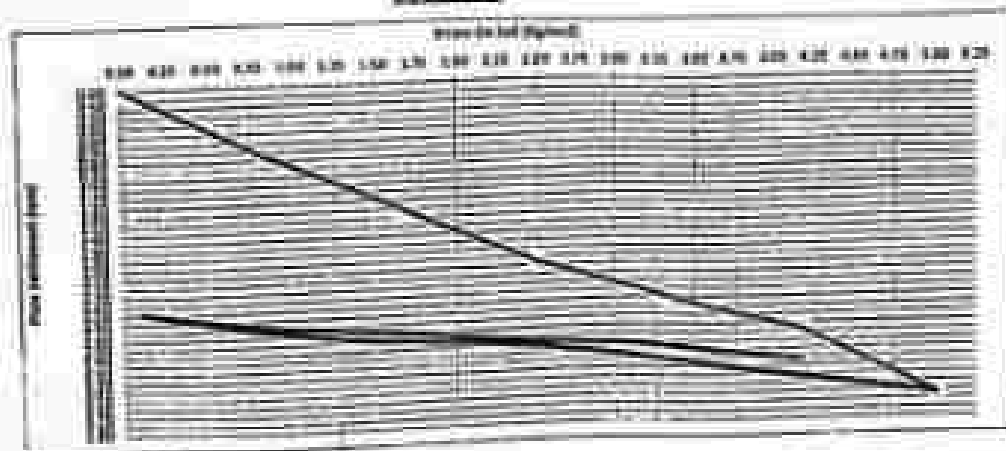
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	17.02	2.15	15.65	2.17	2.60
unloading	1.66	17.15	2.20	15.65	2.35	2.80
stress is reached						
2	3.30	17.64	2.35	15.95	2.65	2.95
3	3.33	17.65	2.42	16.25	2.69	3.00
4	4.17	17.41	2.50	16.35	2.85	3.20



Company Name
Project
Test item
report date
Station
Test No.

[illegible]

Normalized Static Plate Load Tests of Soils
 July 1973



Leading (T)	0	1	2	3	4	5	6
Simple (A)	0	0.66	1.072	1.045	1.012	0.980	0.948
Score (A score)	0.00	0.33	1.00	1.00	1.00	0.97	0.95
Settlement (A)	0.00	0.75	1.00	1.00	1.00	0.97	0.95

Unloading (%)	1	2	3	4
Superficial	5.55	17.68	88.4	71
Stress (kg/cm ²)	0.50	2.50	1.250	0.75
Bottoming (mm)	1.24	1.02	2.84	1.60

Eligible =	209	Eligible =	127	Eligible =	207	Age =	7.28
Total Sample =	21,727,666/53		218				

Leading (J)	0	1	2	3	4	5
Image (H)	0	100.200	1772.0	1766.2	2052.4	2366.1
Strong (P) (mm)	0.50	0.43	1.06	1.00	3.33	4.17
Surround (mm)	0.40	2.00	2.00	2.00	3.00	3.20

2. (max) = 100	3. (max) = 100	4. (max) = 100	5. (max) = 100
1.1 (max) = 100	1.2 (max) = 100	1.3 (max) = 100	1.4 (max) = 100

Part 1: Analysis of the text, identifying the main ideas and supporting details.

Step 4: Modeling of Performance Using the Response Model

11. *Journal of the American Medical Association*, 2000; 284: 1039-1044.

Fig. 4. The difference between E1 and E2 has no significant effect on the β value.

†† = Differentials in efficiency corresponding to 1.2 and 1.7 for the machine setting (per)



Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 12/09/2023
Soil type : Middle Embankment
Location : St From 641+300 To 641+420
Level : ± 2 M
Report No. : 59

Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance e
1	641+325	1644	2.29	5.2	2.17	98.7%	Comply
2	641+350	1053	2.23	5.8	2.11	95.7%	Comply
3	641+380	1051	2.26	5.8	2.14	97.3%	Comply
4	641+410	1387	2.24	5.8	2.11	96.0%	Comply

Degree of compaction based on proctor test dated At :

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 6.4 %

Signature: 
Consulting Engineering Bureau & Laboratories
مكتبه محاسب الاستشارات الهندسية
10/ Middle E. Arman, Cairo
T/A For 2014/2015 - 27/09/2015

10/ Middle E. Arman, Cairo
T/A For 2014/2015 - 27/09/2015
IAS
REGISTERED
Cairo, Egypt

المهندس
أحمد محمد
مهندس الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Dear Gentleman,

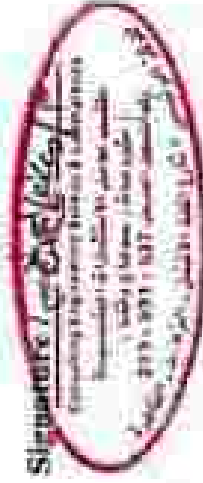
Attached here with the delivered on 7 / 9 / 2023

This sample is representative for 5.000 MP

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity Index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken



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CEL

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مكتب استشارات الهندسة

Company Name : شركة الطائي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.1
37.5	1.5	97.3
25	1	92.1
19	3/4	86.2
12.50	1/2	78.2
9.50	3/8	72.5
4.75	4	57.9
2.00	10	44.3
0.425	40	26.0

Signature:  J.E. Mulla
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مختبر استشارات الهندسة

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مكتب استشارات الهندسة والاختبارات

Company Name : شركة النخعي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	10.2

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Signature: *[Signature]*
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Dr. Ezzat El Ashm
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Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train – HSR From Qous To Arimat

Location : ST:641+460 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0



16 Main El Agha Street
Zamalek, Cairo
Tel Fax: 01116211 - 2756300




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إدارة المخاطر
إدارة البيئة

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arمنت
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 7/09/2023
Reporting Date : 11/09/2023
Reporting No. : 10-3

Soil Classification

TEST	Results (%)	Limits according Projects Spec		
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	44.3	Max 50 %	-----	-----
0.425 mm (No. 40)	26.0	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	10.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature: 
Dr. Hani El-Mohamed
مهندس هاني محمد العلي
2008 - 2010 - 2011 - 2012 - 2013 - 2014 - 2015 - 2016 - 2017 - 2018 - 2019 - 2020 - 2021 - 2022 - 2023

10 Hani El-Mohamed Street
Dokki, Cairo
Tel. No. 25387531 - 27753003

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مكتب محامل الاستشارات الهندسية

Dr. Hani El-Mohamed
Dr. Hani El-Mohamed
مهندس هاني محمد العلي

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسب الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Arment

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 7/09/2023

Reporting Date : 11/09/2023

Reporting No. : 10-3

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

mm	penetration		stress on piston (Mpa)
	mm	Inch	
0.64		0.025	0.34
1.27		0.050	1.50
1.91		0.075	2.57
2.54		0.100	3.57
3.18		0.125	4.54
3.81		0.150	5.27
4.45		0.175	6.06
5.08		0.200	6.34
6.35		0.250	6.90
CBR Result	Stress (Mpa)		CBR 100 %
	50 Value	Sample result	
At 6.1 inch (154 mm) penetration	6.00	3.57	51.7 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.20(\text{gm}/\text{cm}^3)$
At = 6.4 % optimum water content.

3- Exchange load 4.50 Kg

- 4- Call 7-10 for middle of add lower embankments according project spec page No 36

Signature: 

IAS

م. محمد الشاذلي
م. خالد الشاذلي
م. أحمد الشاذلي

شركة الأمان :
Company Name :

Project

Location
; ST:641+400 E= 492410.083 N=2861759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

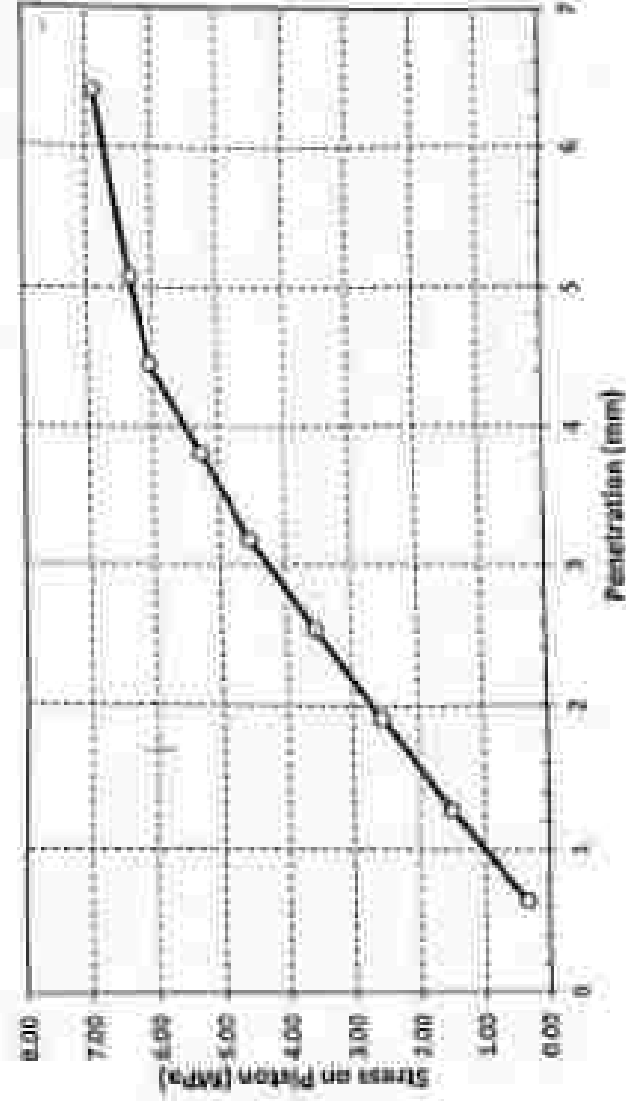
Delivery Date: 7 NOV 2023

Reporting Date : 11/09/2023

Reporting No. :103

Load Penetration Curve of CBR Test

ASTM D-1863



Signature: *[Handwritten Signature]*

500 mg/kg BW daily for 14 days.
Zinc, 0.1 mg/kg BW daily for 14 days.
Dose was adjusted to maintain

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of the
of the

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qons To Armanit
Testing Date : 14/09/2023
Soil type : Middle Embankment
Location : St From 641+420 to 641+540
Level : -2.5 M
Report No. : 62

Compaction test by using Sand - Cone Test Method
ASTM D-1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gmf/cm ³	Moisture Content %	Dry Density (gms/cm ³)	Degree of Compaction (%)	Acceptance
1	641+445	1418	2.29	6.4	2.15	97.8%	Comply
2	641+475	1698	2.24	6	2.12	96.1%	Comply
3	641+495	1404	2.20	6.4	2.07	94.2%	Comply
4	641+525	1058	2.22	6	2.09	95.1%	Comply

Degree of compaction based on proctor test given AC

Max. dry density = 2.19 g/cm³

At optimum moisture content = 6.4 %

Signature

Signature
مكتب محاسن الاستشارات الهندسية
شركة الأهلي
الرياض - 11564
الهاتف : 9200 - 9201
الفاكس : 9202 - 9203
البريد الإلكتروني : info@cel.com.sa

J E Mousa El Abbai Sherif
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إدارة الجودة
إدارة البيئة
إدارة السلامة
ISO 9001:2015, ISO 14001:2015, ISO 45001:2018

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 12 / 9 / 2023

This sample is representative for 5,000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the laboratory is not responsible for the way it is taken

Signature: 
Consulting Engineering Bureau & Laboratories
محاسن استشارات الهندسية
10410 1040 - 1040 1040
10410 1040 - 1040 1040

Youssef El-Masry
Cairo, Egypt
10410 1040 - 1040 1040

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10410 1040 - 1040 1040
10410 1040 - 1040 1040

CEL

Consulting Engineering Division & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة النقيس

Project : Electric Express Train - HSR From Qous To Arمنت

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M.)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-412.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	3/4	84.4
12.50	1/2	77.7
9.50	3/8	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

CEL
Signature/موقع المهندس
Date/تاريخ: 12/09/2023
By/من قبل: [Signature]

3 Elm Street, Al Hail Station
Hail, Saudi Arabia

TAS

دار جدة
0539000000

Company Name : شركة الأمان

Project

: Electric Express Train – HSR From Qous To Armand

Location

: ST:641+400 E=492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 18/09/2023

Reporting Date

12/09/2023

Reporting No.

Materials finer than 75 μm (no. 200) sieve

By washing ASTM D-1140.

Test	Results (%)
Percentage of material finer than: Sieve Size 75 μM (No.200)	9.9

Signature: *[Handwritten Signature]*

References

10

THE FUTURE OF THE FUTURE

IAS

1. *Phragmites australis* (Rostk & Schmidt)
2. *Scirpus americanus* (L.) Link.
3. *Eleocharis acicularis* (L.) Rostk & Schmidt

1

1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 26

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature *[Signature]*
2023-09-12 12:00:00
2023-09-12 12:00:00

100 Mm E Abbas Ghani
Zamalek, Cairo
Tel: 011 27711727 - 27711700

IAS
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2023-09-12
2023-09-12
2023-09-12 12:00:00

CEL

Consulting Engineering Bureau & Laboratories
مكتب ومعامل الاستشارات الهندسية

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanat

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10)	45.9	Max 50 %	—	—
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are (☐ Comply - ☒ Not Comply) with specifications limits

CEL
Signature
Date: 12/09/2023
By: [Signature]
For: [Signature]

3 Elmoad E-Moad Street
Zakaria, Cairo
Tel: 011-2766173 - 2765363

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مركز خدمات العملاء
الرياض - مصر
011-2766173 - 2765363

شركة الطهي : **Company Name**

Protect Electric Express Train - HSR From Qowr To Armand -

Location : ST:641+400 E=492410.088 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment (0.0 M)

Delivery Date : 08/09/2013

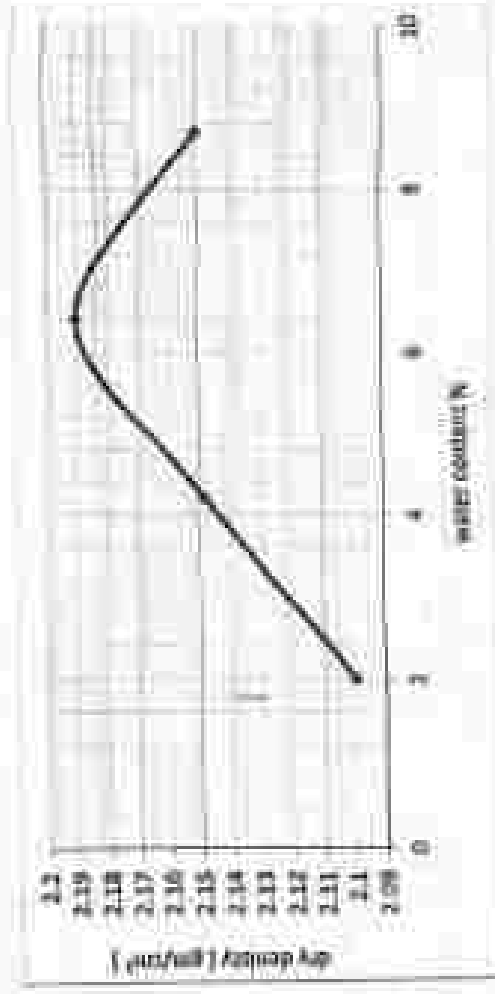
Reporting Date : 12/09/2013

Reporting No. : 10-1

Moisture – Density relation of soil

Test result (Modified predictor test)

457410-1337



- Max dry density (g/cm³) : 2.19
- Optimum moisture content % : 6.4 %

~~Signature/ cert. (cc)~~

750

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1000

www.elsevier.com/locate/jmb

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[illegible]

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INSTITUTE FOR ADVANCED STUDIES

1. *What is the main purpose of the study?*

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Arment

Location

: ST:641+400 E= 492410.088 N=2862759.57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CBR Result	Stress (Mpa)		CBR 100 %
	5% Value	Sample results	
At 0.3 inch (7.62 mm) penetration	6.90	3.59	52 %

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.14 gm /cm³
At = 6.4 % optimum water content.
- 3- Sample size 4.50 Kg.

Signature: 

1 E-Marketing
Zeynep, Can
Tel: Fax: 27700211 - 27700203

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسب الاستشارات الهندسية

Company Name : شركة الذهبي

Project

: Electric Express Train - HSR From Qous To Arment

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

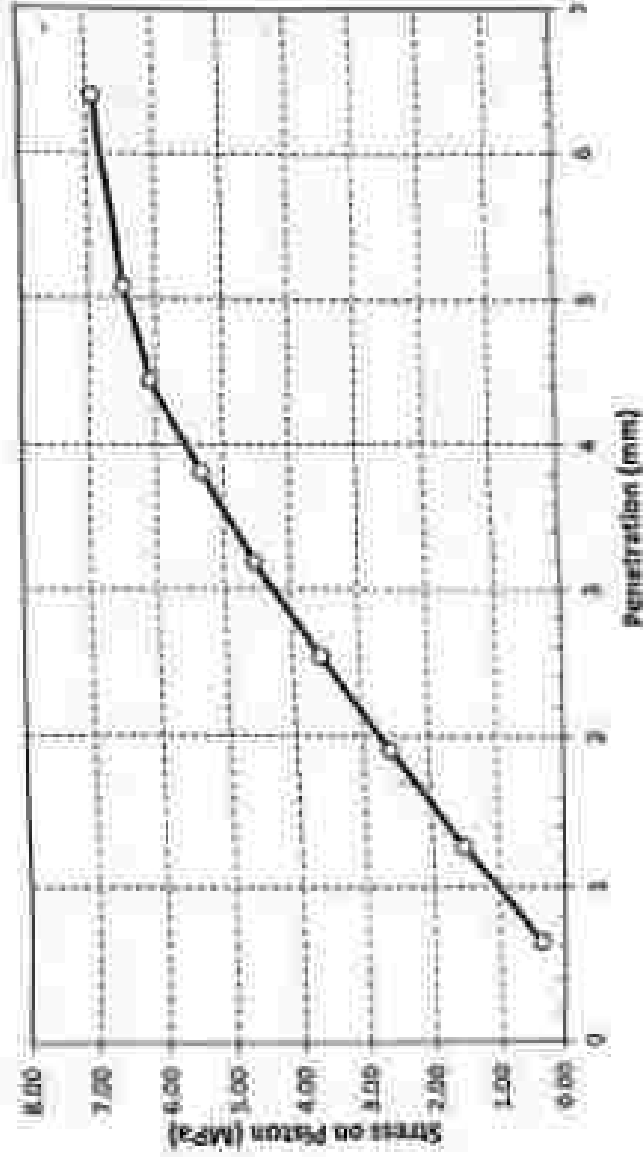
: 12/09/2023

Reporting No.

: 10-4

Load Penetration Curve of CBR Test

ASTM D-1583



Signature

Signature
Consulting Engineering Bureau & Laboratories
Qous, Qous, Qous
Tel: 011 233 1000 Fax: 011 233 1000

3 El-Hadi El-Hadi Street
Qous, Qous
Tel: 011 233 1000 Fax: 011 233 1000

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إلى جهة العمل
إلى جهة العمل
إلى جهة العمل

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 26/09/2023
Soil type : Middel Embankment
Location : St + From 641+300 To 641+420
Level : ± 1.75 M
Report No. : 72

Compaction test by using Sand – Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+330	1803.5	2.20	5.4	2.08	95.1%	Comply
2	641+350	1559.0	2.22	5.8	2.10	95.7%	Comply
3	641+360	1559.7	2.22	5.5	2.10	95.9%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.6%	Comply
5	641+400	1543.1	2.21	6	2.08	95.2%	Comply
6	641+410	1388.9	2.23	6.4	2.10	95.8%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.10 gm/cm³

At optimum moisture content = 6.4 %

Signature

(Signature)
2023/09/26

Dr. Ezzat E. Al-Hadi
Dr. Ezzat E. Al-Hadi
2023/09/26

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IN THE STATE OF ILLINOIS

2023/09/26
2023/09/26
2023/09/26

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Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arman
Location : ST:641+400 E= 492410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Dear Gentleman,

Attached here with the delivered on 8 / 9 / 2023

This sample is representative for 5.000 M³

Materials test

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Specs.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

Note: The sample was brought by the client to our laboratory and the Laboratory is not responsible for the way it is taken

Signature



Signature: Mr. / Mrs.
Name: Cam
Scale: 2000/23 7/10/2023

IAS
Institution

Signature: Mr. / Mrs.
Name: Cam
Scale: 2000/23 7/10/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST:641+400 E= 492410,088. N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	95.3
25	1	89.4
19	$\frac{3}{4}$	84.4
12.50	$\frac{1}{2}$	77.7
9.50	$\frac{3}{8}$	73.3
4.75	4	58.4
2.00	10	45.9
0.425	40	27.5

Signature: 
CP: 

1E-1000 E-1000 (mm)
2E-1000 G-1000
3E-1000 (mm) 2E-1000

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1E-1000 E-1000 (mm)
2E-1000 G-1000
3E-1000 (mm) 2E-1000

Company Name : شركة الأهلي
Project : Electric Express Train – HSR From Qous To Arman
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Materials finer than 75 μ m (no.200) sieve
By washing ASTM D.1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.9

Signature / 
Date: 12/09/2023

Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011-2770573 - 011-2770574

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Mr. M. E. 2023/09/12
Zouheir, Cairo
Tel: 011-2770573 - 011-2770574

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Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة النخعي

Project : Electric Express Train – HSR From Qous To Arman

Location : ST:641+400 E= 492410,088 N=2862759,57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Results of liquid limit and plasticity index of soils according to ASTM D-4318

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Plasticity Index	0

Signature / 

Signature

Dr. Hisham E. Alwan Shari
Cairo, Egypt
Cell: 0111 333 3333

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Dr. Hisham E. Alwan Shari
Cairo, Egypt
Cell: 0111 333 3333

CEL

Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات الهندسية

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Armanit
Location : ST:641+400 E= 491410.088 N=2862759.57
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-a)
2.00 mm (No.10)	45.9	Max 20 %	-----	-----
0.425 mm (No. 40)	27.5	Max 30 %	Max 50 %	-----
0.075 mm (No. 200)	9.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	-----	-----	-----	-----
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %

The test results are ☒ Comply - ☐ Not Comply) with specifications limits

Signature /



A/Eng. E. Alattaf Elhadi
Engineer
No. 10-4 2023/09-12/09/2023

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Engineering Laboratory

مركز اختبار المعايير
الاعتماد المعايير
الاعتماد المعايير

Company Name : شركة الأهلي

Project

: Electric Express Train – HSR From Qous To Armanat

Location

: ST:641+400 E= 492410,088 N=2862759,57

Type of sample

: Soil Embankment (Upper Embankment 0.0 M)

Delivery Date

: 08/09/2023

Reporting Date

: 12/09/2023

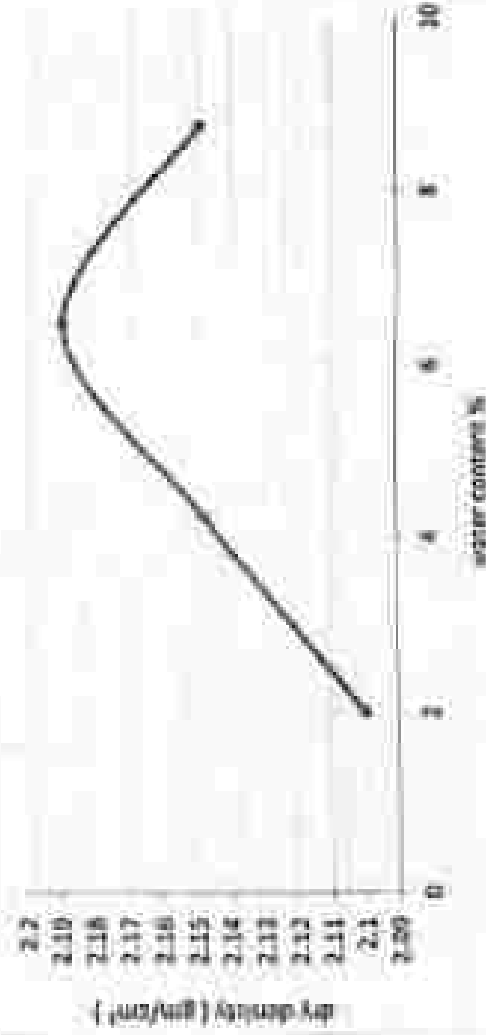
Reporting No.

: 10-4

Moisture – Density relation of soil

Test result (Modified proctor test)

ASTM D-1557



- Max dry density (gm/cm³) : 2.19
- Optimum moisture content % : 6.4 %

Signature /

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2023/09/12 14:00
2023/09/12 14:00

Company Name : شركة الأهلي

Project : Electric Express Train - HSR From Qous To Armanit

Location : ST:641+400 E= 492410.098 N=2862759.57

Type of sample : Soil Embankment (Upper Embankment 0.0 M)

Delivery Date : 08/09/2023

Reporting Date : 12/09/2023

Reporting No. : 10-4

Test Results of California Bearing Ratio on Base Materials ASTM D 1883

penetration	stress on piston (Mpa)	
	mm	Inch
0.64	0.025	0.36
1.27	0.050	1.52
1.91	0.075	2.59
2.54	0.100	3.59
3.18	0.125	4.54
3.81	0.150	5.33
4.45	0.175	6.09
5.08	0.200	6.49
6.35	0.250	6.92

CHB Result	Stress (Mpa)		CHB 100 %
At 0.1 inch (2.54 mm) penetration	So. Value	Sample results	51 %
	6.90	3.59	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.19(\text{gm}/\text{cm}^3)$
At = 6.4 % minimum water content.
- 3- Surrogate test 4.50 Kg

CHB > 10 for middle and lower embankments according project spec page No 36.

Signature /

El Mostafa El Mostafa
Arabic, Chem.
Lab No. (200703) - (200703)



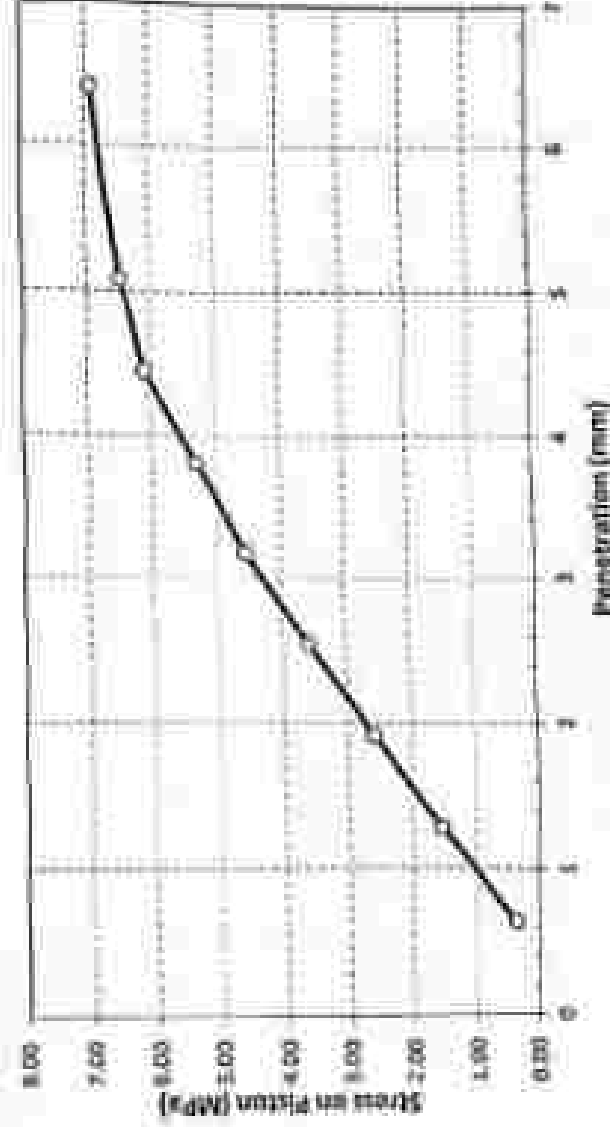
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مركز اختبار
مختبر كيمياء

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company Name : شركة الأهلي
Project : Electric Express Train - HSR From Qous To Arment
Location : ST:641+400 E= 492410,088 N=2862759,57
Type of sample : Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date : 08/09/2023
Reporting Date : 12/09/2023
Reporting No. : 10-4

Load Penetration Curve of CBR Test ASTM D-1883



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Penetration
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Penetration
10.000 (E-2000) (E-2000)

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Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الذهبى

Project : Electric Express Train - HSR From Qous To Armut

Testing Date : 27/09/2023

Soil type : Middle Embankment

Location : St + From 641+300 To 641+420

Level : ± 1.5 M

Report No. : 73

Compaction test by using Sand - Cone Test Method
ASTM D- 1558

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	641+320	1752.1	2.26	5.8	2.14	97.5%	Comply
2	641+340	1529.2	2.26	5.8	2.14	97.1%	Comply
3	641+360	1545.8	2.24	5.6	2.12	96.2%	Comply
4	641+380	1591.7	2.23	6.4	2.09	95.2%	Comply
5	641+400	1473.6	2.27	6	2.14	97.3%	Comply

Degree of compaction based on Proctor test dated At

:Max. dry density = 2.20 gm/cm³

At optimum moisture content = 6.8 %

Signature

2023-09-27 15:00:00

2023-09-27 15:00:00

11-Elash B. Elash B.
Director, Civil
Tel: 011 2766231 - 2766260



مركز
مختبر
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