

المنطقة المركزية الثامنة

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،،

بالإشارة إلى مشروع إستكمال أعمال الجسر الترابي للخط الثاني القطاع الخامس من مشروع إنشاء القطار الكهربائي السريع قطاع (قوص – ادفو) (ج) لتنفيذ المسافة من الكم 660+000 الي 664+000 بطول 4 كم (بالامر المباشر)

تنفيذ : شركة المستقبل للمقاولات العمومية عقد رقم (2024/2023/4)
نتشرف بأن نرفق لسيادتكم طيه (مقايضة معدلة رقم 1)

وتفضلوا بقبول فائق التحية والاحترام،،

رئيس الإدارة المركزية للمنطقة الثامنة

مهندس /

عماد حسين



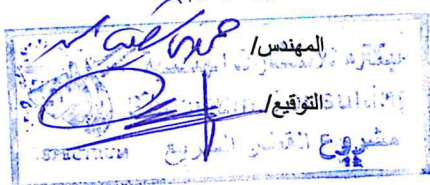
مقاييسه معدلة



أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل)
من محطة ١١٠,١٣ + ٦٢٩ حتى محطة ٦٢٤,٦٣ + ٧١٥ بطول ٨٦,٥١٤٥ كم
تنفيذ شركة / المستقبل للمقاولات العمومية من محطة ٦٥٨+٨٣٨ الي ٦٦٢+٨٢٠ بطول ٣,٩٨ كم (ج)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالي
1	إعمال الإزالة والتطهير				
1-1	بالمتر المسطح أعمال تطهير الموقع من الأشجار والمزروعات والمخلفات في مناطق الدلتا ذات الطبيعة الزراعية الكثيفة بعمق حتى ٣٠ سم و التخلص منها بالمقابل العمومية تمهيداً لأعمال الرفع المساحي لكامل حدود المشروع طبقاً للشروط والمواصفات وتعليمات المهندس المشرف. مسافة النقل حتى ٥٠٠ متر و يتم احتساب علاوة ٠,٣٠ جنيه لكل ١ كم .	م ^٢	٠	٦,٠٠	٠
2-1	بالمتر المكعب أعمال تكسير وإزالة المسطحات المنهارة بالرصف الحالي في الاماكن التي يحدها المهندس المشرف ونقل ناتج التكسير خارج الموقع ومتوسط مسافة النقل حتى ١٠ كم وعمل ما يلزم لنهر العمل طبقاً لكراسة الشروط و المواصفات وتعليمات المهندس المشرف. وفي حالة زيادة مسافة نقل ناتج التكسير عن ١٠ كم من محور الطريق يتم حساب ١ جنيه للكيلومتر للزيادة أو النقص.	م ^٣	٠	٦١,٠٠	٠
2	إعمال الحفر				
1-2	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية لجميع أنواع التربة عدا التربة الصخرية وتسوية السطح بالآلات التسوية والرش بالمياه الأصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافه (٩٥%) من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الأتربة الزائدة لمسافة ٥٠٠ متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة ١ جنيه /كم لمسافة نقل ناتج الحفر وتصبح ١,١ جنيه/كم ابتداء من ٤/٥/٢٠٢٣ -علاوة زيادة السولار ٠,٦ جنيه /م ^٣ ابتداء من ٤/٥/٢٠٢٣	م ^٣	٠	٢٣,٠٠	٠
2-2	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية في التربة المتماسكة عدا التربة الصخرية (باستخدام البلدوزر) وتسوية السطح بالآلات التسوية والرش بالمياه الأصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافه (٩٥%) من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الأتربة الزائدة لمسافة ٥٠٠ متر من محور الطريق ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة ١ جنيه /كم لمسافة نقل ناتج الحفر وتصبح ١,١ جنيه/كم ابتداء من ٤/٥/٢٠٢٣ -علاوة زيادة السولار ٠,٧ جنيه /م ^٣ ابتداء من ٤/٥/٢٠٢٣	م ^٣	١٠٠,٠٠٠	٢٦,٠٠	٢,٦٠٠,٠٠٠

استشارى سبكتروم



مهندس الشركة المنفذة

المهندس/ محمود
التوقيع/





مقاييسه معدلة



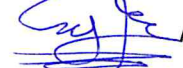
أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل)
من محطة ١١٠,١٣ + ٦٢٩ حتى محطة ٦٢٤,٦٣ + ٧١٥ بطول ٨٦,٥١٤٥ كم
تنفيذ شركة / المستقبل للمقاولات العموميه من محطة ٦٥٨+٨٣٨ الي ٦٦٢+٨٢٠ بطول ٣,٩٨ كم (ج)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئه	الاجمالى
4-2	بالمتر المكعب اعمال حفر بالمعدات الميكانيكية فى تربة صخرية	٣م	.	٦٠,٠٠	.
	ذات إجهاد (٢٠٠-١٠٠) كجم/سم ^٢			٦٢,٠٠	
	ذات إجهاد (٢٠٠-١٠٠) كجم/سم ^٢ من يناير ٢٠٢٣			٧٠,٠٠	
	علاوة ١,٦ جنيه /م ^٣ لارتفاع السولار وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣			٧٥,٠٠	
	ذات إجهاد (٣٠٠-٢٠٠) كجم/سم ^٢			٨٢,٠٠	
	ذات إجهاد (٣٠٠-٢٠٠) كجم/سم ^٢ من يناير ٢٠٢٣			٨٨,٠٠	
	علاوة ١,٩ جنيه /م ^٣ لارتفاع السولار وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣			٦,٠٠	
	ذات إجهاد (٤٠٠-٣٠٠) كجم/سم ^٢			٧,٠٠	
	ذات إجهاد (٤٠٠-٣٠٠) كجم/سم ^٢ من يناير ٢٠٢٣				
	علاوة ٢,٢ جنيه /م ^٣ لارتفاع السولار وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣				
4-2	علاوة زيادة إجهاد كل ١٠٠ كجم/سم ^٢ لكل متر مكعب				
	علاوة زيادة إجهاد كل ١٠٠ كجم/سم ^٢ لكل متر مكعب وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣				
4-2	ومحمل على البند الاتى				
	١- تحميل ونقل ناتج الحفر لمسافة لا تقل عن ٥٠٠ متر ٢ - ارنكة الميول الجانبية باستخدام المعدات الميكانيكية ٣- توريد اترية مطابقة للمواصفات وتشغيلها باستخدام الات التسوية بسمك لا يزيد عن ٢٥ سم لاستكمال المنسوب التصميمى لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا حتى ١٠ %) ورشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والتمك الجيد بالهراسات للوصول الى اقصى كثافة جافة (٩٥% من الكثافة الجافة القصوى). ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع شتملاته طبقاً لاصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.				

استشارى مسكترم

المهندس/ 
مقرم الاستشارى
التوقيع/ 
مشروع القطار السريع
SPECTRUM

مهندس الشركة المنفذة

المهندس/ 
التوقيع/ 

شركة المستقبل للمقاولات العمومية
س.ت: ١٦٢٢٧
ب.ض: ٣٥٩ - ٥٧٢ - ٣٤٧



مقاييسه معدلة



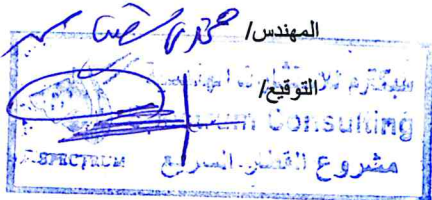
أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل)

من محطة ١١٠,١٣ + ٦٢٩ حتى محطة ٦٢٤,٦٣ + ٧١٥ بطول ٨٦,٥١٤٥ كم

تنفيذ شركة / المستقبل للمقاولات العمومية من محطة ٦٥٨+٨٣٨ الي ٦٦٢+٨٢٠ بطول ٣,٩٨ كم (ج)

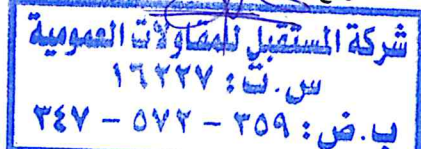
رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالي
3	Embankment اعمال الردم				
1-3	أعمال تحميل وتوريد ونقل اترية مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسمك لا يزيد عن ٥٠ سم حتى منسوب (2- متر) اسفل منسوب الفرمة و بسمك لايزيد عن ٢٥سم اعلى من منسوب (2- متر) من منسوب الفرمة لاستكمال المنسوب التصميمي لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا حتى ١٥%) ورشها بالمياه الاصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة (٩٥% من الكثافة الجافة القصوى) ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. - فى حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥% بحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١%. - مسافة النقل حتى ٢ كم و يتم احتساب علاوة ١,٤ جنيه لكل كم بالزيادة او النقصان وتصيح ١,٥ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر يشمل عمل تشوينات و تخليط و اختبارات و نقل لموقع العمل حتي مسافة ٢ كم ، -علاوة زيادة السولار ١,٦ جنيه /م/ ٣ ابتداء من ٤/٥/٢٠٢٣ -السعر لا يشمل قيمة المادة المحجيرة.	٣م	١٢٣,٣٣٣	٦٠,٠٠	٧,٤٠٠,٠٠٠
2-3	اعمال تحميل وتوريد ونقل اترية مطابقة للمواصفات وذلك باستخدام ناتج الحفر الصخرى الصالح وذلك طبقاً لتعليمات المهندس المشرف والتدرج المطلوب باستخدام الكاسور ذلك بعد التأكد من التدرج والمقاسات المطلوبة لاختبار المناخل طبقاً لتوصيف الاستشاري وتشغيلها باستخدام آلات التسوية بسمك لايزيد عن ٥٠ سم حتى منسوب (2- متر) وبسمك لايزيد عن ٢٥ سم لاستكمال المنسوب التصميمي لتشكيل الجسر والاكتاف (نسبة تحمل كاليفورنيا لا تقل ١٥%) ورشها بالمياه الاصولية 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 التفصيلية المعتمدة والبند بجميع مشتلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. - فى حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥% بحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١%. - مسافة النقل حتى ٢ كم و يتم احتساب علاوة ١,٤ جنيه لكل كم بالزيادة او النقصان وتصيح ١,٥ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر يشمل عمل تشوينات و تخليط و اختبارات و نقل لموقع العمل حتي مسافة ٢ كم ، -السعر يشمل مسافة نقل ناتج الحفر وتغذية الكاسور والنقل الى موقع القطاع بمتوسط مسافة ٣ كم -علاوة زيادة السولار ٣ جنيه /م/ ٣	٣م	.	١١٠,٠٠	.
4	Prepared Subgrade طبقة تأسيس				
1-4	بالمتر المكعب أعمال توريد وفرش طبقة تأسيس (Prepared Subgrade) من الأحجار الصلبة المترججة ناتج تكسير الكسارات والمطبقة للمواصفات وأقصى حجم للحبيبات ١٠٠ مم وألا تزيد نسبة المار من منخل ٢٠٠ عن ١٢% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٢٥% وألا تزيد نسبة الفاقد بجهاز لوس أنجلوس عن ٣٠% وألا يزيد الامتصاص عن ١٥% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ٨٠ ميجاباسكال ويتم فرداها على طبقتين باستخدام آلات التسوية الحديثة على أن لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٥ سم ورشها بالمياه الاصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن ٩٥% من الكثافة المعملية والفئة تشمل اجراء التجارب المعملية والحقلية ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية والبند بجميع مشتلاته طبقاً للمواصفات الفنية للمشروع وتقرير الاستشاري وتعليمات المهندس المشرف. - مسافة النقل لا تقل عن ٢٠ كم. - يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة أو النقصان وتصيح ١,٣ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر لا يشمل قيمة المواد المحجيرة. -علاوة زيادة السولار ١,٨ جنيه /م/ ٣ ابتداء من ٤/٥/٢٠٢٣	٣م	.	١٣٠,٠٠	.

استشارى سيكترم



مهندس الشركة المنفذة

المهندس / محمد حجاز
التوقيع



		مقاييسه معدلة		
أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل) من محطة ١١٠,١٣ + ٦٢٩ حتى محطة ٦٢٤,٦٣ + ٧١٥ بطول ٨٦,٥١٤٥ كم تنفيذ شركة / المستقبل للمقاولات العمومية من محطة ٦٥٨+٨٣٨ الى ٦٦٢+٨٢٠ بطول ٣,٩٨ كم (ج)				
رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفنة
5	طبقات الاساس Subballast			
1-5	بالمتر المكعب أعمال توريد وفرش طبقة أساس من الأحجار الصلبة المترجعة ناتج تكسير الكسرات والمطابقة للمواصفات وأقصى حجم للحبيبات ما بين ٣١,٥ مم إلى ٤٠ مم وألا يزيد نسبة المار من منخل ٢٠٠ عن ٥% والتدرج الوارد بالاشتراطات الخاصة بالمشروع لا تقل نسبة تحمل كاليفورنيا عن ٨٠% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ١٢٠ ميجاباسكال وألا يزيد نسبة الفاقد بجهاز لوس أنجلوس عن ٣٠% وألا يزيد الامتصاص عن ١٥% ويتم فرداها على طبقتين باستخدام آلات التسوية الحديثة على أن لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٠ سم ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد للهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن ١٠٠%) من الكثافة العملية والفنة تشمل إجراء التجارب العملية والحقلية ويتم التنفيذ لأصول طبقاً الصناعة و الرسومات التفصيلية المعتمدة و البند بجميع مشتملاته طبقاً للمواصفات الفنية للمشروع وتقرير الاستشارى وتعليمات المهندس المشرف. - مضافة النقل لا تقل عن ٢٠ كم. - يتم احتساب علاوة ١,٢ جنيه لكل ١ كم بالزيادة أو النقصان وتصبح ١,٣ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر لا يشمل قيمة المواد المحجيرة. -علاوة زيادة السولار ١,٨ جنيه /م٣ ابتداء ٤/٥/٢٠٢٣	٣م	١٣٥,٠٠	

استشارى سبكتروم



مهندس الشركة المنفذة

المهندس/ محمود حسان
التوقيع/

شركة المستقبل للمقاولات العمومية
س.ب: ١٦٢٢٧
ب.ض: ٣٥٩ - ٥٧٢ - ٣٤٧

مقاييسه معدلة				
   				
أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوبسمبل) من محطة ١١٠,١٣ + ٦٢٩ حتى محطة ٦٢٤,٦٣ + ٧١٥ بطول ٨٦,٥١٤٥ كم تنفيذ شركة / المستقبل للمقاولات العمومية من محطة ٦٥٨+٨٣٨ الى ٦٦٢+٨٢٠ بطول ٣,٩٨ كم (ج)				
رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفنة
7	البلاطات الخرسانية / الرصف الخرساني			
1-7	بالمتر المسطح أعمال توريد وصب خرسانة عادية سمك ١٥ سم لإرتفاع ١٠ متر رأسي لحماية الأكتاف والميول الجانبية تتكون من ٣ م ٠,٨ من دولوميت متدرج + ٣ م ٠,٤ رمل حرش والإضافات طبقاً لتعليمات الاستشاري (فيبر + سبكا) على أن يكون السن نظيف ومغسول والرمال خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم (بالفاصل) بسمك ٢ سم طبقاً لتعليمات الاستشاري) والبند يشمل تجهيز وإستبدال مناسب التربة الطبيعية أسفل البلاطة للوصول إلى المناسب التصميمية على أن تحقق الخرسانة إجهاد لا يقل عن ٢٥٠ كجم / سم ٢ وتشطيب السطح وملئ الفواصل بالبيتومين المرمل والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف. _ يتم إضافة علاوة قدرها ٥ جنيه بعد أول ١٠ متر رأسي على أن تضاف لكل مسطح (لا يقل عن ٥ متر رأسي)	م ٢	٠	٤٣٣,٠٠
2-7	بالمتر المكعب أعمال توريد وصب خرسانة عادية لتنفيذ قدمه سفليه وعلويه للأكتاف والميول الجانبية تتكون من ٣ م ٠,٨ من دولوميت متدرج + ٣ م ٠,٤ رمل حرش والإضافات طبقاً لتعليمات الاستشاري (فيبر + سبكا) على أن يكون السن نظيف ومغسول والرمال خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم (بالفاصل) بسمك ٢ سم طبقاً لتعليمات الاستشاري) والبند يشمل أعمال الحفر والشدات وكل م يلزم لنهوا الأعمال أسفل البلاطة للوصول إلى المناسب التصميمية على أن تحقق الخرسانة إجهاد لا يقل عن ٢٥٠ كجم/سم ٢ وملئ الفواصل بالبيتومين المرمل والتنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.	م ٣	٠,٠٠	٢,٦٨٥,٠٠
الإجمالي				١٠,٠٠٠,٠٠٠

مهندس الهيئة
المهندس/
التوقيع/
رئيس الادارة المركزية
للمنطقة الثامنة
التوقيع/
م/ عماد حسين



مهندس الشركة المنفذة
المهندس/
التوقيع/

شركة المستقبل للمقاولات العمومية
س.ت: ١٦٢٢٧
ب.ض: ٣٥٩ - ٥٧٢ - ٣٤٧



محضر اعتماد حصر كميات



التاريخ : ٢٠٢٣-١٠-١٥

اسم المشروع : مشروع القطار الكهربائي السريع (6 أكتوبر - اسوان - أبو سمبل) القطاع الخامس

قامت شركة برليانت كونسلت للاستشارات المساحية (استشارى الاعمال المساحية لهيئة الطرق والكبارى)

باعتماد الكميات المنفذة الخاصة بشركة المستقبل للمقاولات العمومية

م	من المحطة رقم	الى المحطة رقم	التصنيف	الكمية بالمتر المكعب	الملاحظات
1	658+840	662+820	اعمال القطع باستخدام البلدوزر	74269.69	اعمال قطع على (RE05)
2	658+840	662+820	اعمال الردم	26268.97	اعمال الردم على (RE05)
اجمالى القطع				74269.69	
اجمالى الردم				26268.97	

المرفقات :

1- استلام ميزانية شبكية

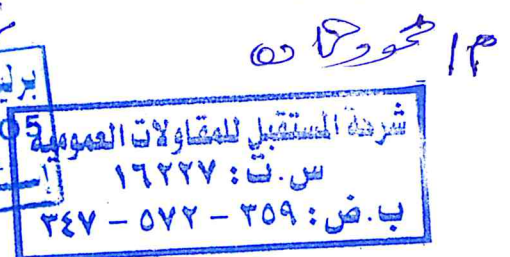
2- قطاعات عرضية

3- شيت اكسيل لتوضيح اعمال الحصر

استشارى الهيئة

استشارى المساحة

مهندس الشركة المنفذة





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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) – Qous 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 660+700 to 660+800
Station 660+750
Level -2.5
Test Date : 04/09/2023
Report Date : 07/09/2023
Type of soil : Original earth
Report No. : 1

Dear Gentleman,

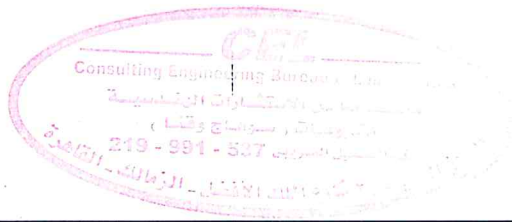
According to the above mentioned subject the test performed as follows:-

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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

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	: 04/09/2023
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_{v2} / E_{v1} Ratio
	From	To			E_{v1} (MPa)	E_{v2} (Mpa)	
1	660+700	660+800	660+750	-2.5	112.9	142.6	1.26

Signature /

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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+750
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.94	0.06	19.91	0.09	0.07
2	1.66	19.87	0.13	19.79	0.21	0.17
3	2.50	19.68	0.32	19.61	0.39	0.36
4	3.33	19.51	0.49	19.47	0.53	0.51
5	4.17	19.39	0.61	19.27	0.73	0.67
6	5.00	19.17	0.83	19.09	0.91	0.87

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.24	0.76	19.17	0.83	0.80
2	1.25	19.36	0.64	19.25	0.75	0.70
3	0.100	19.72	0.28	19.67	0.33	0.31

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.60	0.40	19.59	0.41	0.40
proximately equ	1.66	19.49	0.51	19.44	0.56	0.54
stress is reached.						
2	2.50	19.38	0.62	19.31	0.69	0.66
3	3.33	19.21	0.79	19.19	0.81	0.80
4	4.17	19.12	0.88	19.09	0.91	0.90



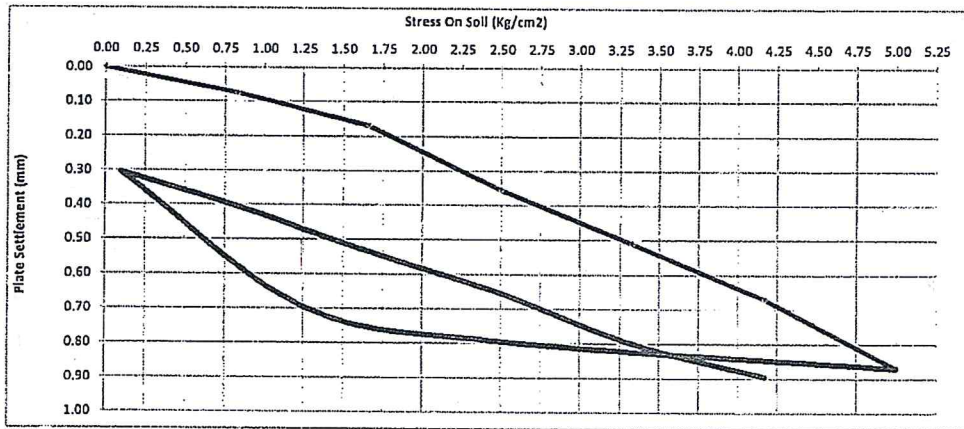
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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 6601750
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.07	0.17	0.36	0.51	0.67	0.87

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.87	0.80	0.70	0.31

D (mm) = 300	S1 (mm) = 0.15	S2 (mm) = 0.54	ΔS = 0.39
Ev1 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	112.9		

$$Ev2/Ev1 = 1.26$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.31	0.40	0.54	0.66	0.80	0.90

D (mm) = 300	S1 (mm) = 0.51	S2 (mm) = 0.82	ΔS = 0.31
Ev2 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	142.6		

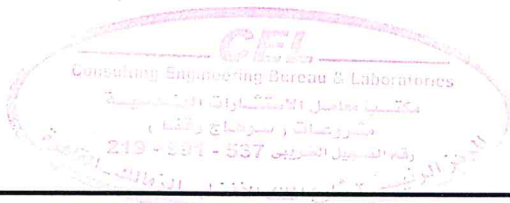
Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مشروعات محافظات الوجه القبلي

Company : شركة المستقبل :

Project : Electric Express Train - Sector (5) – Qous 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 660+600 to 660+700
Station : 660+650
Level : -2.5
Test Date : 04/09/2023
Report Date : 07/09/2023
Type of soil : Original earth
Report No. : 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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

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	: 04/09/2023
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_{v2} / E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (Mpa)}$	
1	660+600	660+700	660+650	-2.5	91.2	134.0	1.47

Signature /

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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+650
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.80	0.20	19.82	0.18	0.19
2	1.66	19.66	0.34	19.50	0.50	0.42
3	2.50	19.39	0.61	19.30	0.70	0.65
4	3.33	19.28	0.72	19.09	0.91	0.82
5	4.17	19.02	0.98	18.91	1.09	1.04
6	5.00	18.88	1.12	18.82	1.18	1.15

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.96	1.04	18.90	1.10	1.07
2	1.25	19.11	0.89	19.06	0.94	0.92
3	0.100	19.56	0.44	19.49	0.51	0.48

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.44	0.56	19.38	0.62	0.59
approximately equal	1.66	19.30	0.70	19.25	0.75	0.73
stress is reached.						
2	2.50	19.18	0.82	19.16	0.84	0.83
3	3.33	19.00	1.00	18.99	1.01	1.01
4	4.17	18.87	1.13	18.89	1.11	1.12



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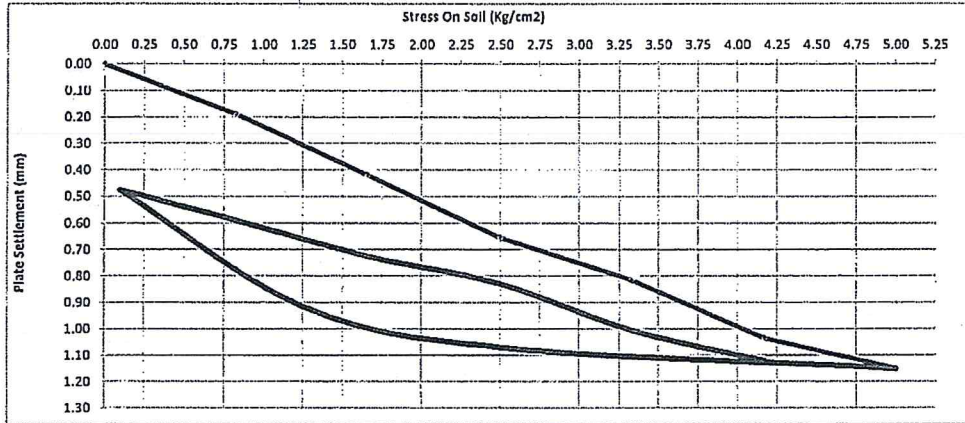


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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+650
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.19	0.42	0.65	0.82	1.04	1.15

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.15	1.07	0.92	0.48

D (mm) = 300	S1 (mm)= 0.38	S2(mm)= 0.86	ΔS = 0.48
Ev1 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	91.2		

$$Ev2/Ev1 = 1.47$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.48	0.59	0.73	0.83	1.01	1.12

D (mm) = 300	S1 (mm)= 0.70	S2(mm)= 1.03	ΔS = 0.33
Ev2 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	134.0		

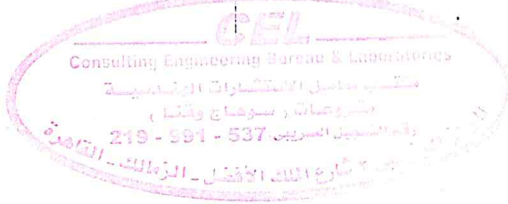
Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) -- Qous 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 (660+00 to 660+200)
Test Date : 29/08/2023
Report Date : 30/08/2023
Type of soil : Original earth
Report No. : 1 : 2

Dear Gentleman,

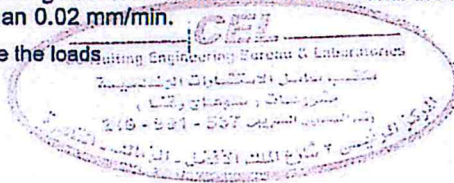
According to the above mentioned subject the test performed as follows:-

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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

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	29/08/2023
- 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_{v2}/E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (Mpa)}$	
1	660+000	660+100	660+075	-2.5	131.5	137.8	1.05
2	660+100	660+200	660+140	-2.5	123.5	143.3	1.16

Signature / 
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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (660+075)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.92	0.08	19.85	0.15	0.11
2	1.66	19.80	0.20	19.69	0.31	0.25
3	2.50	19.69	0.31	19.48	0.52	0.41
4	3.33	19.57	0.43	19.39	0.61	0.52
5	4.17	19.32	0.68	19.21	0.79	0.73
6	5.00	19.06	0.94	19.00	1.00	0.97

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.14	0.86	19.09	0.91	0.89
2	1.25	19.32	0.68	19.29	0.71	0.70
3	0.100	19.68	0.32	19.58	0.42	0.37

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.52	0.48	19.45	0.55	0.52
1	1.66	19.38	0.62	19.31	0.69	0.66
2	2.50	19.24	0.76	19.19	0.81	0.79
3	3.33	19.09	0.91	19.05	0.95	0.93
4	4.17	18.99	1.01	18.97	1.03	1.02



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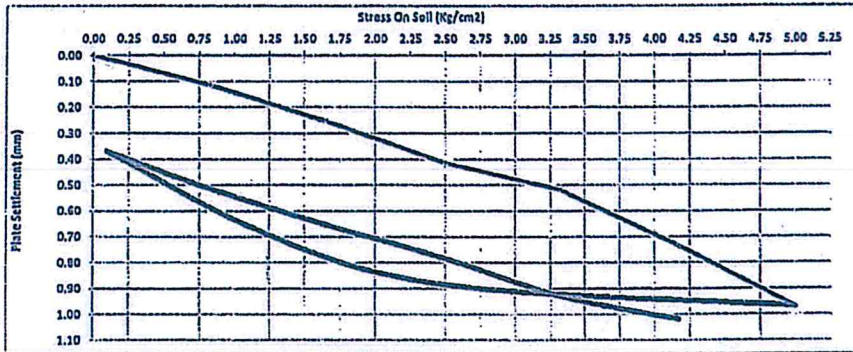


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مشروعات محافظات الوجه القبلي

Company Name : شركة المسكيت
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (0601075)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.6
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.11	0.25	0.41	0.52	0.73	0.97

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.97	0.89	0.70	0.37

D (mm) =	300	S1 (mm) =	0.23	S2 (mm) =	0.56	ΔS =	0.34
Ev1 (MPa) =	(0.75 * D * Δσ) / ΔS						

$$Ev2/Ev1 = 1.05$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.37	0.52	0.66	0.79	0.93	1.02

D (mm) =	300	S1 (mm) =	0.63	S2 (mm) =	0.95	ΔS =	0.32
Ev2 (MPa) =	(0.75 * D * Δσ) / ΔS						

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)
DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة المسكبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (660+140)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils

DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.88	0.12	19.81	0.19	0.16
2	1.66	19.71	0.29	19.65	0.35	0.32
3	2.50	19.64	0.36	19.47	0.53	0.45
4	3.33	19.49	0.51	19.29	0.71	0.61
5	4.17	19.31	0.69	19.12	0.88	0.79
6	5.00	19.10	0.90	18.98	1.02	0.96

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.17	0.83	19.07	0.93	0.88
2	1.25	19.36	0.64	19.22	0.78	0.71
3	0.100	19.74	0.26	19.62	0.38	0.32

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.61	0.39	19.50	0.50	0.45
1	1.66	19.49	0.51	19.46	0.54	0.53
2	2.50	19.38	0.62	19.32	0.68	0.65
3	3.33	19.24	0.76	19.19	0.81	0.79
4	4.17	19.09	0.91	19.02	0.98	0.95



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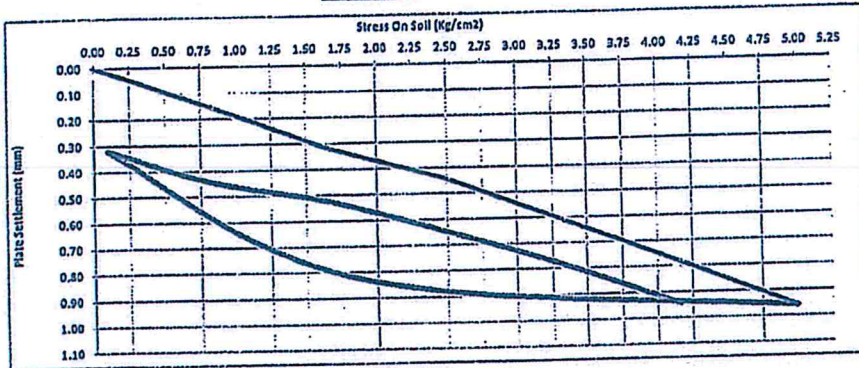
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Company Name
Project
Test Date
report date
Location
Test No.

شركة المستقبل :
Electric Express Train - Sector (5) - Qous to Arment.
29/08/2023
30/08/2023
Stallion (600+140)
02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.18	0.32	0.45	0.61	0.79	0.96

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.96	0.88	0.71	0.32

D (mm) =	300	S1 (mm)=	0.29	S2(mm)=	0.65	ΔS =	0.36
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS						
	123.5						

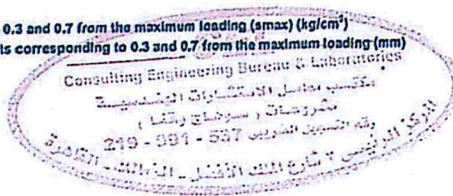
$$Ev2/Ev1 = 1.16$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.32	0.45	0.53	0.65	0.79	0.95

D (mm) =	300	S1 (mm)=	0.51	S2(mm)=	0.82	ΔS =	0.31
Cv2 (MPa) =	(0.75*D*Δσ)/ΔS						
	143.3						

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the reloading stage.
D = Plate diameter (mm)

Δσ = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مشروعات محافظات الوجه القبلى

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) - Qous 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 660+500 to 660+600
Station : 660+550
Level : -2.5
Test Date : 04/09/2023
Report Date : 07/09/2023
Type of soil : Original earth
Report No. : 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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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مشروعات محافظات الوجه القبلي

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	: 04/09/2023
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_{v2} / E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (Mpa)}$	
1	660+500	660+600	660+550	-2.5	87.2	123.7	1.42

Signature /

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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) – Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+550
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.81	0.19	19.85	0.15	0.17
2	1.66	19.69	0.31	19.52	0.48	0.40
3	2.50	19.50	0.50	19.32	0.68	0.59
4	3.33	19.31	0.69	19.05	0.95	0.82
5	4.17	19.09	0.91	18.90	1.10	1.01
6	5.00	18.92	1.08	18.75	1.25	1.17

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.00	1.00	18.77	1.23	1.12
2	1.25	19.17	0.83	18.94	1.06	0.94
3	0.100	19.62	0.38	19.51	0.49	0.43

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.40	0.60	19.40	0.60	0.60
approximately equal	1.66	19.37	0.63	19.28	0.72	0.67
stress is reached.						
2	2.50	19.21	0.79	19.19	0.81	0.80
3	3.33	19.02	0.98	19.00	1.00	0.99
4	4.17	18.89	1.11	18.86	1.14	1.13



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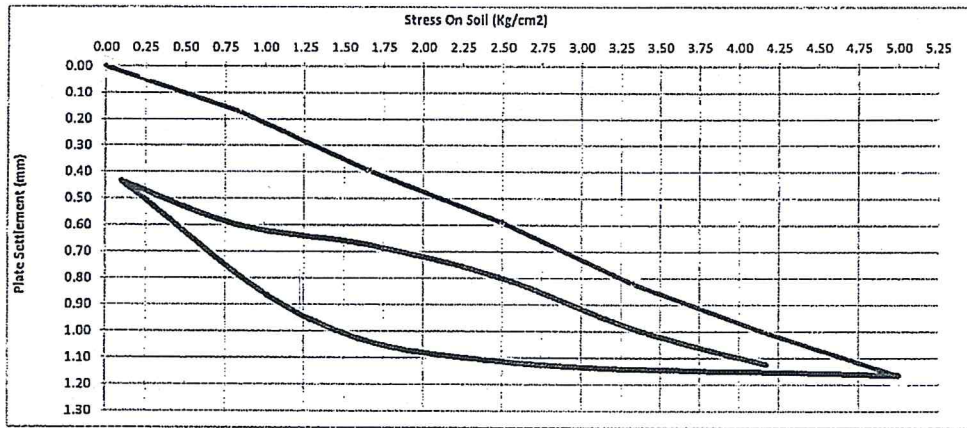


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مشروعات محافظات الوجه القبلي

Company Name : شركة المستقل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+550
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.17	0.40	0.59	0.82	1.01	1.17

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.17	1.12	0.94	0.43

D (mm) =	300	S1 (mm) =	0.36	S2(mm) =	0.86	ΔS =	0.51
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS		87.2				

$$Ev2/Ev1 = 1.42$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.43	0.60	0.67	0.80	0.99	1.13

D (mm) =	300	S1 (mm) =	0.66	S2(mm) =	1.02	ΔS =	0.36
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS		123.7				

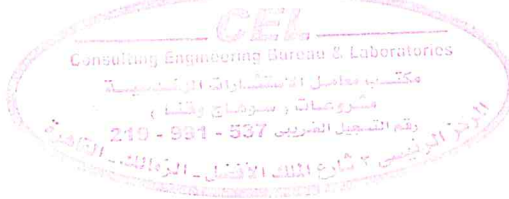
Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

ΔS = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) – Qous 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 (660+300 to 660+500)
Test Date : 02/09/2023
Report Date : 03/09/2023
Type of soil : Original earth
Report No. : 1 : 2

Dear Gentleman,

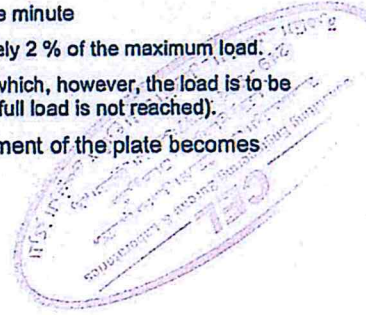
According to the above mentioned subject the test performed as follows:-

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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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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	02/09/2023
- 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_{v2}/E_{v1} Ratio
	From	To			$E_{v1} \text{ (MPa)}$	$E_{v2} \text{ (Mpa)}$	
1	660+300	660+400	660+340	-2.5	94.3	112.0	1.19
2	660+400	660+500	660+460	-2.5	85.6	130.8	1.53

Signature /

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مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+340)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

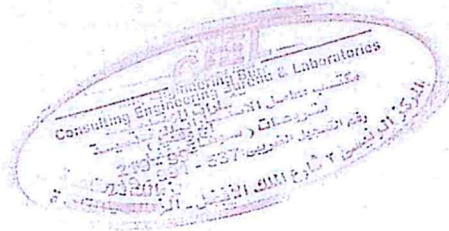
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.80	0.20	0.21
2	1.66	19.56	0.44	19.63	0.37	0.41
3	2.50	19.32	0.68	19.48	0.52	0.60
4	3.33	19.17	0.83	19.24	0.76	0.80
5	4.17	19.00	1.00	19.01	0.99	0.99
6	5.00	18.89	1.11	18.90	1.10	1.11

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.98	1.02	19.00	1.00	1.01
2	1.25	19.21	0.79	19.26	0.74	0.76
3	0.100	19.62	0.38	19.67	0.33	0.35

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.50	0.50	19.53	0.47	0.48
1	1.66	19.47	0.53	19.39	0.61	0.57
2	2.50	19.32	0.68	19.24	0.76	0.72
3	3.33	19.12	0.88	19.05	0.95	0.91
4	4.17	18.97	1.03	18.88	1.12	1.08



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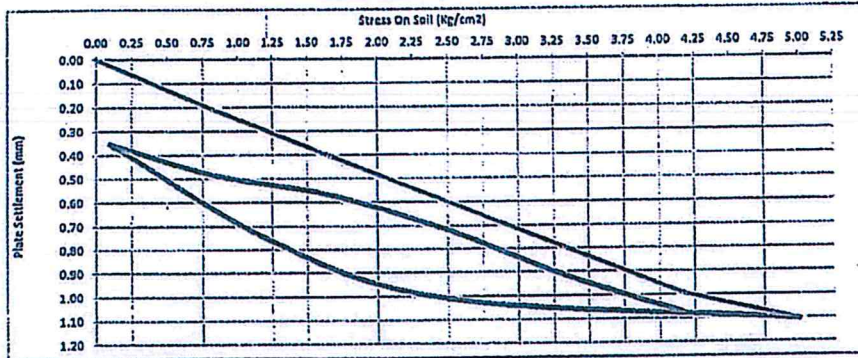


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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
Report date : 03/09/2023
Location : Station (660+340)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.21	0.41	0.60	0.80	0.99	1.11

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.11	1.01	0.76	0.35

D (mm) =	300	S1 (mm) =	0.37	S2(mm) =	0.84	ΔS =	0.47
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS		94.3				

Ev2/Ev1 = 1.19

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.35	0.48	0.67	0.72	0.91	1.08

D (mm) =	300	S1 (mm) =	0.55	S2(mm) =	0.95	ΔS =	0.39
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS		112.0				

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δs = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة المستقل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+460)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

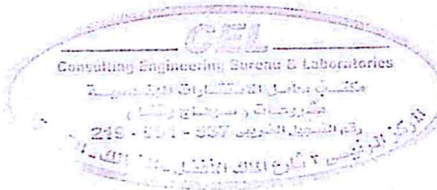
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.76	0.24	0.23
2	1.66	19.64	0.36	19.58	0.42	0.39
3	2.50	19.42	0.58	19.36	0.64	0.61
4	3.33	19.20	0.80	19.12	0.88	0.84
5	4.17	19.00	1.00	18.98	1.02	1.01
6	5.00	18.86	1.14	18.81	1.19	1.17

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.94	1.06	18.89	1.11	1.09
2	1.25	19.12	0.88	19.06	0.94	0.91
3	0.100	19.49	0.51	19.44	0.56	0.54

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.37	0.63	19.30	0.70	0.66
1	1.66	19.20	0.80	19.17	0.83	0.82
2	2.50	19.08	0.92	19.00	1.00	0.96
3	3.33	18.92	1.08	18.88	1.12	1.10
4	4.17	18.81	1.19	18.76	1.24	1.22



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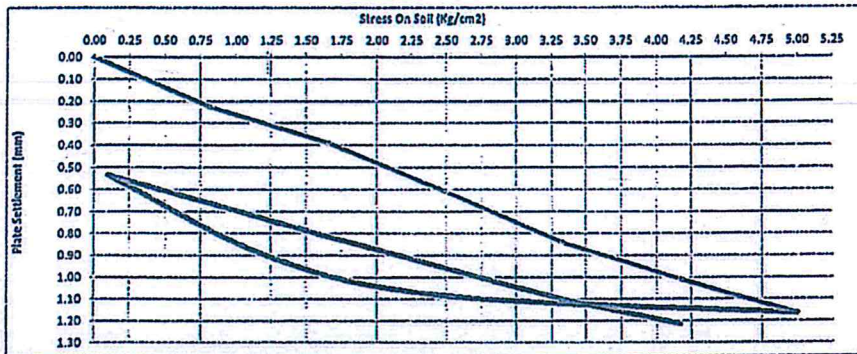


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Company Name : شركة المستقل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+460)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.39	0.61	0.84	1.01	1.17

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.17	1.09	0.91	0.54

D (mm) =	300	S1 (mm)=	0.36	S2(mm)=	0.97	ΔS =	0.52
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS						

Ev2/Ev1 = 1.53

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.54	0.00	0.82	0.90	1.10	1.22

D (mm) =	300	S1 (mm)=	0.79	S2(mm)=	1.12	ΔS =	0.34
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS						

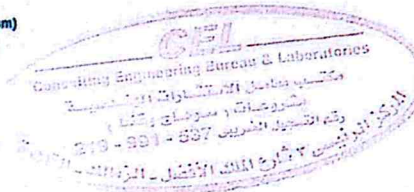
Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δσ = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 05

Dear Gentleman,

Attached here with the delivered on 8 / 3 / 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

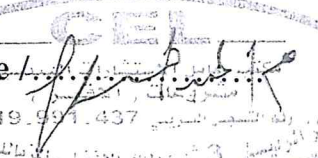
Signature /



Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 05

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

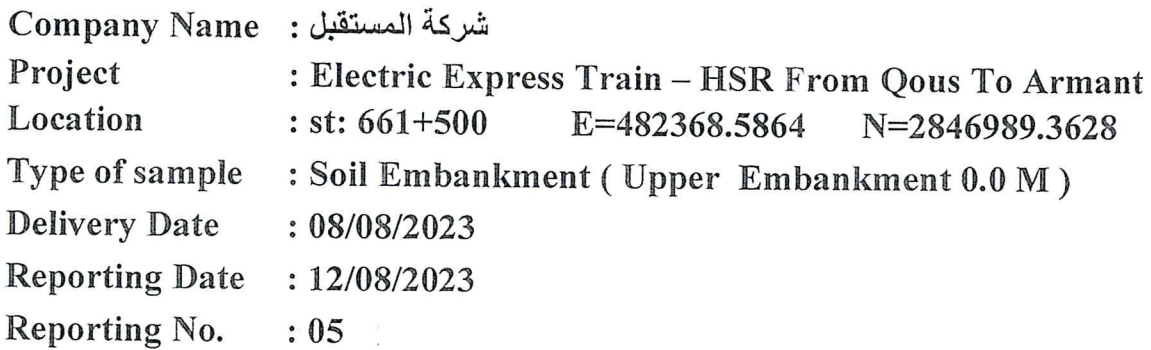
Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	93.2
37.5	1.5	83.8
25	1	70.3
19	$\frac{3}{4}$	63.7
12.50	$\frac{1}{2}$	50.1
9.50	$\frac{3}{8}$	44.7
4.75	4	35.5
2.00	10	32.6
0.425	40	25.6

Signature: 
219.991.437
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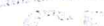
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Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	11.7

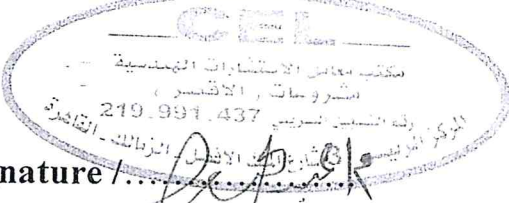
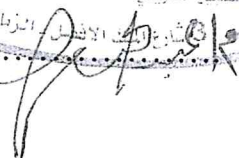
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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
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

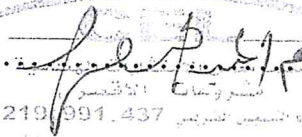

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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 05

Soil Classification According To Project Specs :

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).	32.6	Max 50 %	-----	-----
0.425 mm (No. 40).	25.6	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	11.7	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

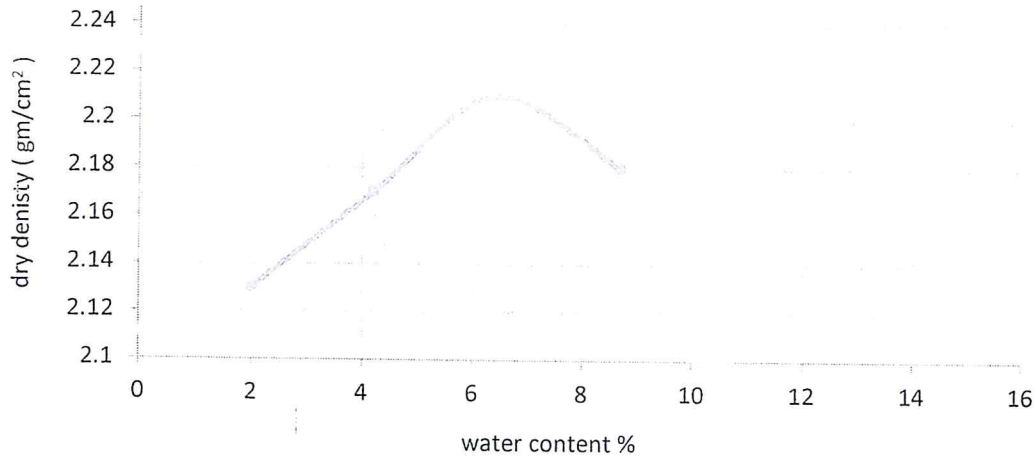
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

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219/991.437
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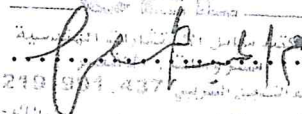
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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 05

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 المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
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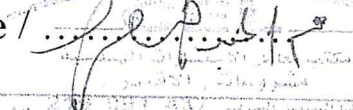
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.45
1.27	0.050	1.27
1.91	0.075	2.13
2.54	0.100	3.04
3.18	0.125	4.05
3.81	0.150	5.06
4.45	0.175	5.82
5.08	0.200	6.33
6.35	0.250	6.58

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	44 %
	6.90	3.04	

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 spec page No 36.

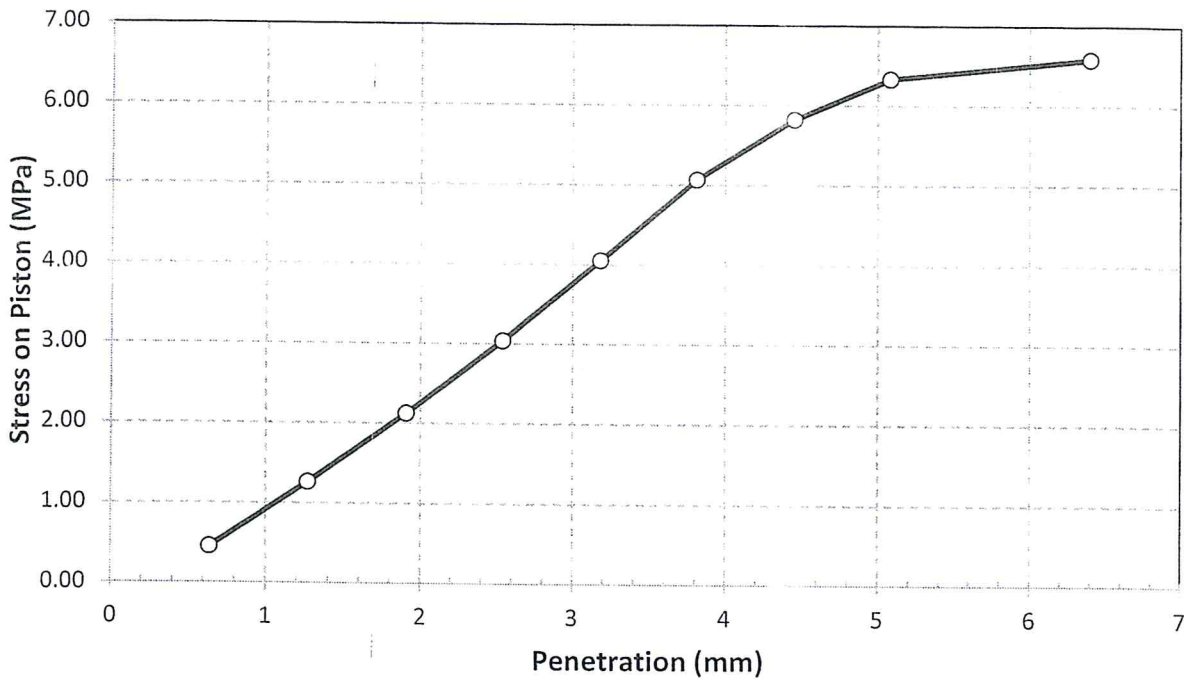
Signature 

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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 661+500 E=482368.5864 N=2846989.3628
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 05

Load Penetration Curve of CBR Test
ASTM D-1883



Signature

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219 391.437
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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 11/10/2023
Soil type : Middle Embankment
Location : ST from 661+040 To 664+140
Level : - 3 M
Report No. : 57

**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	659+540	1443	1.61	6	1.52	68.4%	Comply
2	659+581	1639	2.27	6	2.14	96.5%	Comply
3	659+595	1688	2.28	6.4	2.14	96.6%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 6.4%

Signature /  27369093
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رقم التسجيل الضريبي: ٢٧٣٦٩٠٩٣



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلى

Company : شركة المستقل :

Project : Electric Express Train - Sector (5) – Qous 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 (660+300 to 660+500)
Test Date : 02/09/2023
Report Date : 03/09/2023
Type of soil : Original earth
Report No. : 1 : 2

Dear Gentleman,

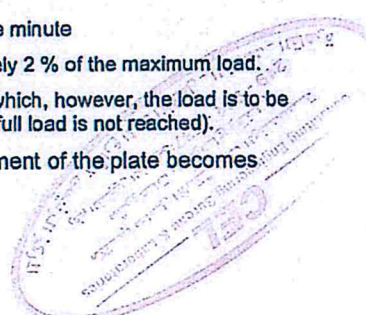
According to the above mentioned subject the test performed as follows:-

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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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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	02/09/2023
- 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_{v2}/E_{v1} Ratio
	From	To			E_{v1} (MPa)	E_{v2} (Mpa)	
1	660+300	660+400	660+340	-2.5	94.3	112.0	1.19
2	660+400	660+500	660+460	-2.5	85.6	130.8	1.53

Signature /

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مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+340)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

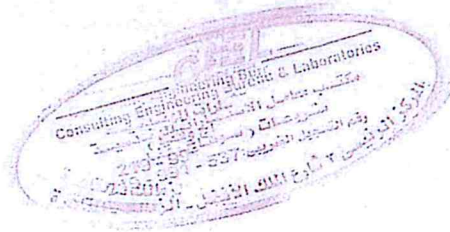
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.80	0.20	0.21
2	1.66	19.56	0.44	19.63	0.37	0.41
3	2.50	19.32	0.68	19.48	0.52	0.60
4	3.33	19.17	0.83	19.24	0.76	0.80
5	4.17	19.00	1.00	19.01	0.99	0.99
6	5.00	18.89	1.11	18.90	1.10	1.11

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.98	1.02	19.00	1.00	1.01
2	1.25	19.21	0.79	19.26	0.74	0.76
3	0.100	19.62	0.38	19.67	0.33	0.35

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.50	0.50	19.53	0.47	0.48
1	1.66	19.47	0.53	19.39	0.61	0.57
2	2.50	19.32	0.68	19.24	0.76	0.72
3	3.33	19.12	0.88	19.05	0.95	0.91
4	4.17	18.97	1.03	18.88	1.12	1.08



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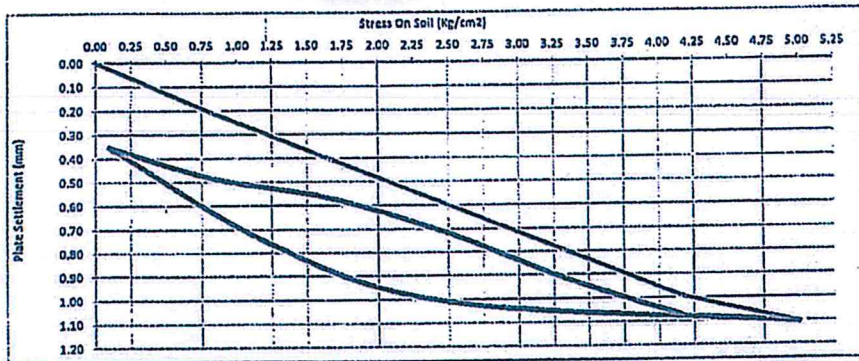


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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+340)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.21	0.41	0.60	0.80	0.99	1.11

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.11	1.01	0.76	0.35

D (mm) =	300	S1 (mm)=	0.37	S2(mm)=	0.84	ΔS =	0.47
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS						
	94.3						

Ev2/Ev1 = 1.19

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.35	0.48	0.57	0.72	0.91	1.08

D (mm) =	300	S1 (mm)=	0.55	S2(mm)=	0.95	ΔS =	0.39
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS						
	112.0						

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Ds = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+460)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

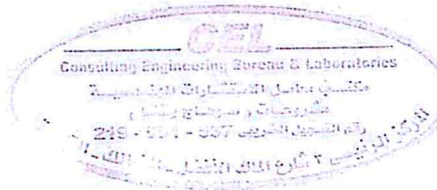
Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.78	0.22	19.76	0.24	0.23
2	1.66	19.64	0.36	19.58	0.42	0.39
3	2.50	19.42	0.58	19.36	0.64	0.61
4	3.33	19.20	0.80	19.12	0.88	0.84
5	4.17	19.00	1.00	18.98	1.02	1.01
6	5.00	18.86	1.14	18.81	1.19	1.17

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.94	1.06	18.89	1.11	1.09
2	1.25	19.12	0.88	19.06	0.94	0.91
3	0.100	19.49	0.51	19.44	0.56	0.54

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.37	0.63	19.30	0.70	0.66
1	1.66	19.20	0.80	19.17	0.83	0.82
2	2.50	19.08	0.92	19.00	1.00	0.96
3	3.33	18.92	1.08	18.88	1.12	1.10
4	4.17	18.81	1.19	18.76	1.24	1.22



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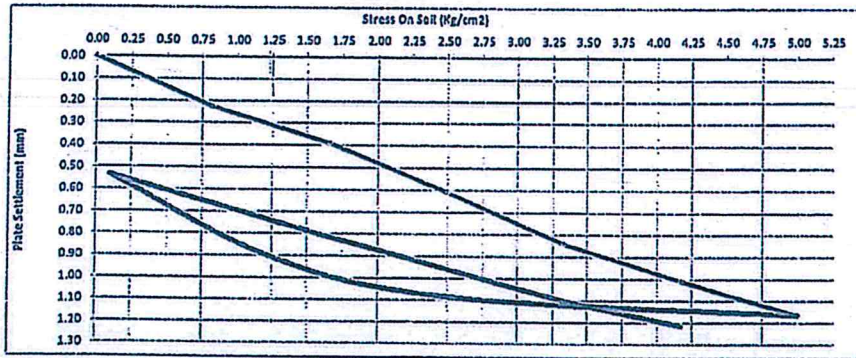


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مشروعات محافظات الوجه القبلي

Company Name : شركة المستنجل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 02/09/2023
report date : 03/09/2023
Location : Station (660+460)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.39	0.61	0.84	1.01	1.17

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm²)	5.00	2.50	1.250	0.10
Settlement (mm)	1.17	1.09	0.91	0.54

D (mm) =	300	S1 (mm) =	0.36	S2 (mm) =	0.87	ΔS =	0.52
Ev1 (MPa) =	(0.75 * D * Δσ) / ΔS						
	85.6						

$$Ev2/Ev1 = 1.53$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.54	0.00	0.82	0.90	1.10	1.22

D (mm) =	300	S1 (mm) =	0.79	S2 (mm) =	1.12	ΔS =	0.34
Ev2 (MPa) =	(0.75 * D * Δσ) / ΔS						
	130.8						

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δσ = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مشروعات محافظات الوجه القبلى

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) – Qous 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 (660+00 to 660+200)
Test Date : 29/08/2023
Report Date : 30/08/2023
Type of soil : Original earth
Report No. : 1 : 2

Dear Gentleman,

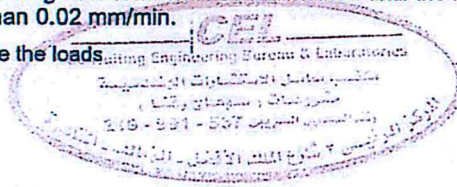
According to the above mentioned subject the test performed as follows:-

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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (660+075)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.92	0.08	19.85	0.15	0.11
2	1.66	19.80	0.20	19.69	0.31	0.25
3	2.50	19.69	0.31	19.48	0.52	0.41
4	3.33	19.57	0.43	19.39	0.61	0.52
5	4.17	19.32	0.68	19.21	0.79	0.73
6	5.00	19.06	0.94	19.00	1.00	0.97

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.14	0.86	19.09	0.91	0.89
2	1.25	19.32	0.68	19.29	0.71	0.70
3	0.100	19.68	0.32	19.58	0.42	0.37

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.52	0.48	19.45	0.55	0.52
1	1.66	19.38	0.62	19.31	0.69	0.66
2	2.50	19.24	0.76	19.19	0.81	0.79
3	3.33	19.09	0.91	19.05	0.95	0.93
4	4.17	18.99	1.01	18.97	1.03	1.02



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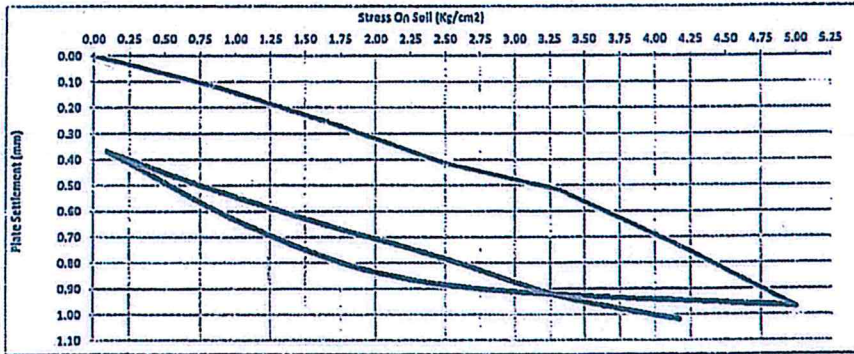


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مشروعات محافظات الوجه القبلي

Company Name : شركة المسكيت
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (0601075)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.6
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.11	0.25	0.41	0.52	0.73	0.97

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.97	0.89	0.70	0.37

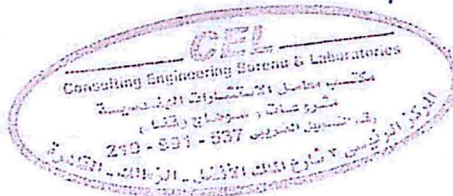
D (mm) =	300	S1 (mm) =	0.23	S2 (mm) =	0.56	ΔS =	0.34
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS		131.5				

$$Ev2/Ev1 = 1.05$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.37	0.52	0.66	0.79	0.93	1.02

D (mm) =	300	S1 (mm) =	0.63	S2 (mm) =	0.95	ΔS =	0.32
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS		137.8				

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)
DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (660+140)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.88	0.12	19.81	0.19	0.16
2	1.66	19.71	0.29	19.65	0.35	0.32
3	2.50	19.64	0.36	19.47	0.53	0.45
4	3.33	19.49	0.51	19.29	0.71	0.61
5	4.17	19.31	0.69	19.12	0.88	0.79
6	5.00	19.10	0.90	18.98	1.02	0.96

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.17	0.83	19.07	0.93	0.88
2	1.25	19.36	0.64	19.22	0.78	0.71
3	0.100	19.74	0.26	19.62	0.38	0.32

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.61	0.39	19.50	0.50	0.45
1	1.66	19.49	0.51	19.46	0.54	0.53
2	2.50	19.38	0.62	19.32	0.68	0.65
3	3.33	19.24	0.76	19.19	0.81	0.79
4	4.17	19.09	0.91	19.02	0.98	0.95



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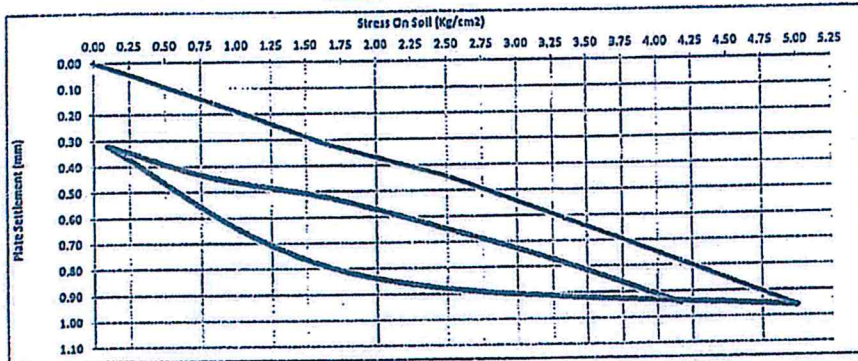


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مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 29/08/2023
report date : 30/08/2023
Location : Station (600+140)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.16	0.32	0.45	0.61	0.79	0.95

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.96	0.88	0.71	0.32

D (mm) =	300	S1 (mm) =	0.29	S2(mm) =	0.65	ΔS =	0.36
Ev1 (MPa) =	(0.75*D*Δσ)/ΔS						
	123.5						

$$Ev2/Ev1 = 1.16$$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.32	0.45	0.53	0.65	0.79	0.95

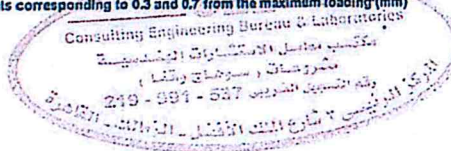
D (mm) =	300	S1 (mm) =	0.51	S2(mm) =	0.92	ΔS =	0.31
Ev2 (MPa) =	(0.75*D*Δσ)/ΔS						
	143.3						

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Δσ = The difference between 0.3 and 0.7 from the maximum loading (σmax) (kg/cm²)

ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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مكتب معامل الاستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) – Qous 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 (660+200 to 660+300)
Test Date : 30/08/2023
Report Date : 31/08/2023
Type of soil : Original earth
Report No. : 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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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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.

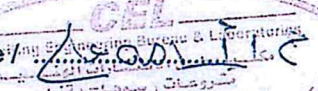
Report

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

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Plate Diameter (mm)	300
- date of measurement	30/08/2023
- 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_{v2}/E_{v1} Ratio
	From	To			E_{v1} (MPa)	E_{v2} (Mpa)	
1	660+200	660+300	660+240	-2.0	81.6	125.6	1.54

Signature: 
ممثل المكتب
رقم التسجيل المبرمج 537 - 991 - 2003
البريد الإلكتروني: info@cel-egypt.com

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مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 30/08/2023
report date : 31/08/2023
Location : Station (660+240)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.79	0.21	19.72	0.28	0.25
2	1.66	19.54	0.46	19.49	0.51	0.49
3	2.50	19.27	0.73	19.21	0.79	0.76
4	3.33	19.09	0.91	19.00	1.00	0.96
5	4.17	18.94	1.06	18.91	1.09	1.08
6	5.00	18.84	1.16	18.76	1.24	1.20

Unloading Stage (1)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.91	1.09	18.84	1.16	1.13
2	1.25	19.09	0.91	19.00	1.00	0.96
3	0.100	19.56	0.44	19.50	0.50	0.47

Loading Stage (2)

Loading	Stress Kg/cm2	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.41	0.59	19.44	0.60	0.63
1	1.66	19.29	0.71	19.20	0.80	0.76
2	2.50	19.12	0.88	19.08	0.92	0.90
3	3.33	18.97	1.03	18.91	1.09	1.06
4	4.17	18.86	1.14	18.81	1.19	1.17



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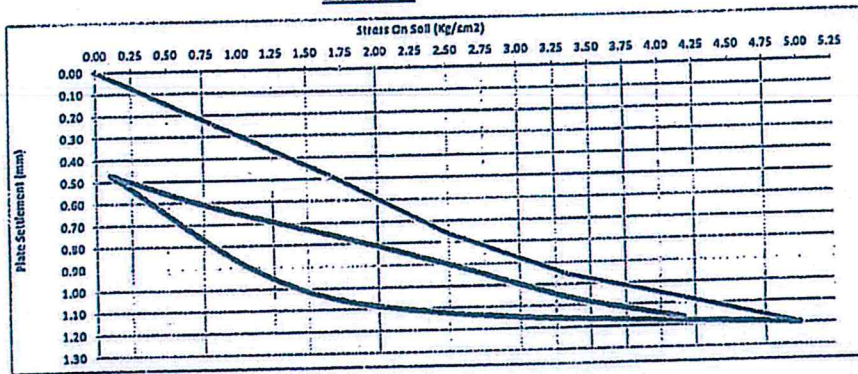


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Company Name : شركة المسكيت
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 30/08/2023
report date : 31/08/2023
Location : Station (660+240)
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.25	0.49	0.76	0.96	1.08	1.20

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	1.20	1.13	0.96	0.47

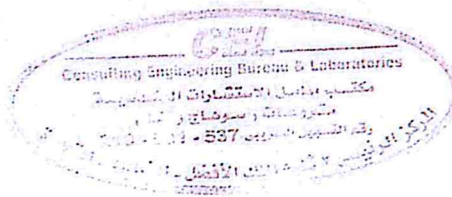
D (mm) = 300	S1 (mm) = 0.44	S2 (mm) = 0.96	ΔS = 0.54
Ev1 (MPa) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	81.6		

$Ev2/Ev1 = 1.54$

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.47	0.63	0.76	0.90	1.06	1.17

D (mm) = 300	S1 (mm) = 0.73	S2 (mm) = 1.08	ΔS = 0.35
Ev2 (MPa) = $(0.75 \cdot D^2 \cdot \Delta \sigma) / \Delta S$	125.6		

Ev1 = Modulus of deformation during the loading stage.
Ev2 = Modulus of deformation during the Reloading stage.
D = Plate diameter (mm)
Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)
ΔS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 19/9/2023
Soil type : Middle Embankment
Location : ST from 659+980 to 660+100
Level : - 1.75 M
Report No. : 34

**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	660+000	1908	2.23	6.4	2.09	96.0%	Comply
2	660+040	1184	3.50	64	2.14	98.0%	Comply
3	660+080	1460	2.27	5.8	2.15	98.6%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.18 gm/cm³
- At optimum moisture content = 6.4 %

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Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

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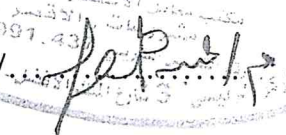


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Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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)	5.6

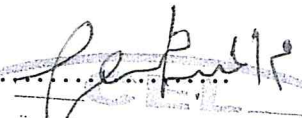
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Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

**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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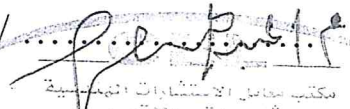
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المراسلة المقروءة
بمكتبنا
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Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
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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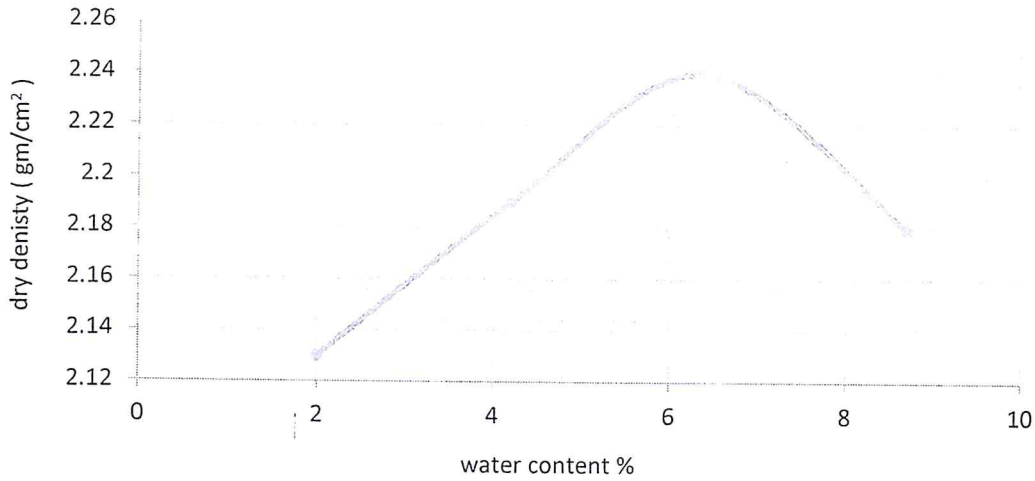
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Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature: 
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مستشار
رقم التسجيل المهني 219.994.437
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Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

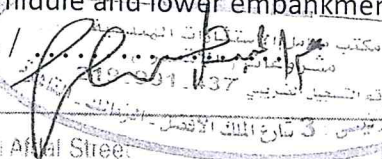
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.31
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48 %
	6.90	3.31	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.24 (gm /cm³)
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 
مكتب معامل الاستشارات الهندسية
شركة المستقبل للمقاولات العامة
رقم التسجيل الهندسي 19001-437
الترخيص 3 شارع الملك الأفندي - برج التحرير

3 El Malek El Afyal Street
Zamalek, Cairo
Tel & Fax 27369237 27369093

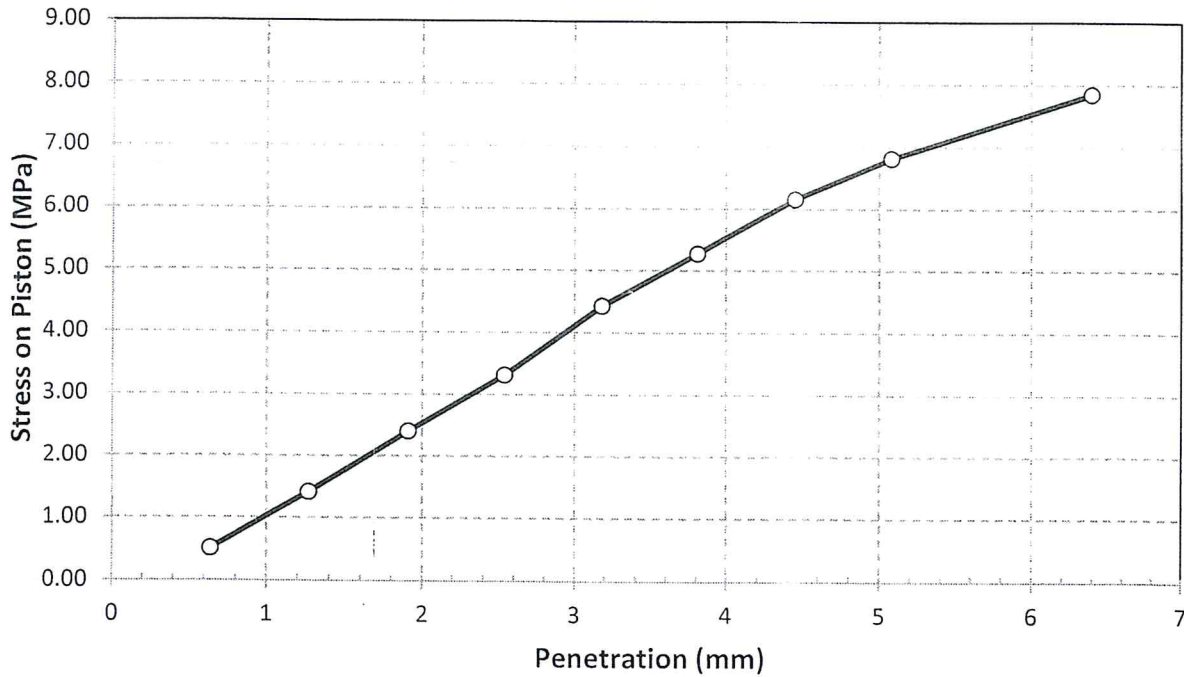


في حالة الاختبار
الرمال الباردة
المواد الحبيبية

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Load Penetration Curve of CBR Test

ASTM D-1883



Signature

أ. م. محمد الجبوري
مهندس استشارات الهندسية
مشاريع الطرق والبنية التحتية
249.994.437
3 شارع الملك الأفضل - الزمالة - القاهرة

3 El Malek El Afral Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



إدارة مكتب الاستشارات
الزماملة - القاهرة
الهاتف : 27367231 - 27363093

18

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 10/9/2023
Soil type : طبقه استبدال
Location : ST from 660+320 To 660+400
Level : - 2.5 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	660+340	1469	2.34	5.6	2.22	99.3%	Comply
2	660+380	1369	2.25	6	2.12	95.2%	Comply

• Degree of compaction based on proctor test dated At

• Max. dry density = 2.23 gm/cm³

• At optimum moisture content = 6.4 %

Signature



Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature



Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

Signature

3 El Malek El Afrtal Street
Zamalek, Cairo
Tel & Fax: 27367231 - 27363092

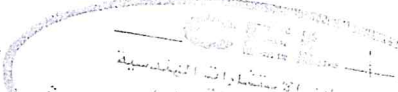
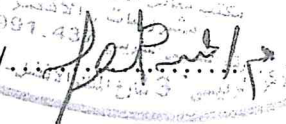


مكتب معامل الاستشارات
الهندسية - القاهرة
219, 991, 437

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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)	5.6

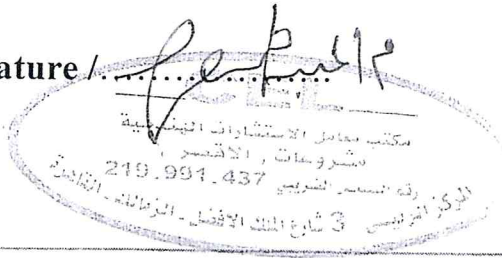

مكتب معامل الاستشارات الهندسية
ش.م.م. 219.991.43
Signature / 

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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 Malek E Afdal Street
Zamalek, Cairo.
Tel & Fax 27367231 - 27363093



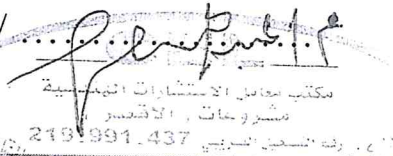
إلى السيد مدير
الهيئة العامة
للبحاثل الهندسية
القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature / 
مكتب معامل الاستشارات الهندسية
شروعات ، الأقصر
رقم التسجيل المميز 2491991.437

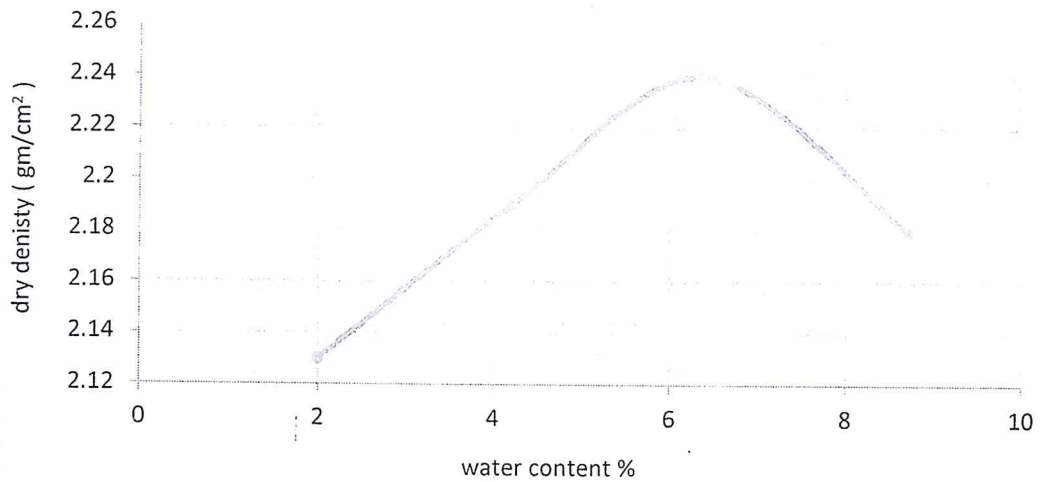
3 El Malek El Ahdal Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369093



شركة الاستشارات
الهندسية
مكتب
الأقصر

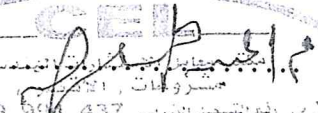
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature


م. المهندس
م. المهندس
219.994.437
الرقم الرئيسي 3 شارع الملك فيصل - القاهرة

3 El Malek El Afrjal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



ش. الملك فيصل
القاهرة
م. المهندس

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

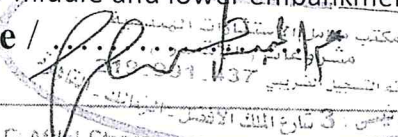
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.31
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48 %
	6.90	3.31	

Notes:

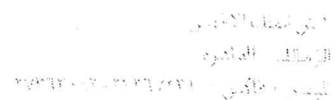
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.24 (gm /cm³)
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature / 

3 El Malek El Ahal Street,
Zamalek, Cairo
Tel & Fax: 27369031 - 27369093



إشهاد الاعتماد
الهيئة العامة
للمقاييس والمواصفات
بمصر



Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 21/09/2023
Soil type : Middle Embankment
Location : ST from 660+300 TO 660+480
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	660+330	1196	2.22	6.4	2.09	95.8%	Comply
2	660+360	1385	2.27	5.8	2.14	98.4%	Comply
3	660+380	1370	2.26	6	2.13	97.7%	Comply
4	660+405	1534	2.23	6.4	2.10	96.1%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.18 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية
شركات استشارات هندسية
رقم التسجيل المبرمج 537 - 531
3 El Malek El Malek Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363093



٢ ش الملك الأفضل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٧٢٣١

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 8 / 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

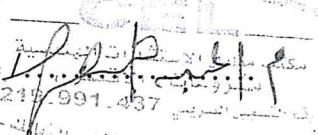
Signature


مكتب معامل الاستشارات الهندسية
رقم التسجيل العدلي 27369093
المركز الرئيسي 3 شارع الملك الافضل - الهرم - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

Signature 
219.991.437
3 شارع الملك الافضل - الزمالة - القاهرة

3 El Malek El Afrlal Street
Zamalek, Cairo
Tel/Fax: 27367231 - 27363092

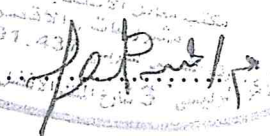


شركة المستقبل
الزماملة القاهرة
تلفون 27367231 - 27363092

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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)	5.6

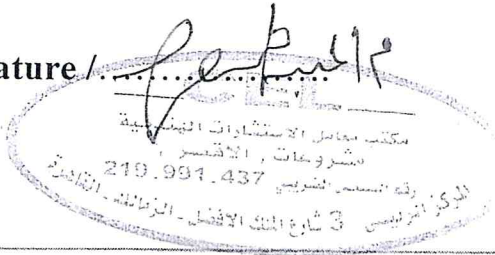
Signature / 
219.991.43

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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 /



2 El Malek El Afridi Street
Zamalek, Cairo.
Tel & Fax 27367231 - 27363093



مركز الاختبار
البيانات
2023-08-12

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

مكتب معامل الاستشارات الهندسية
مشاريع ، الأقبية
219 991 437
3 شارع النيل الأقبية - القاهرة

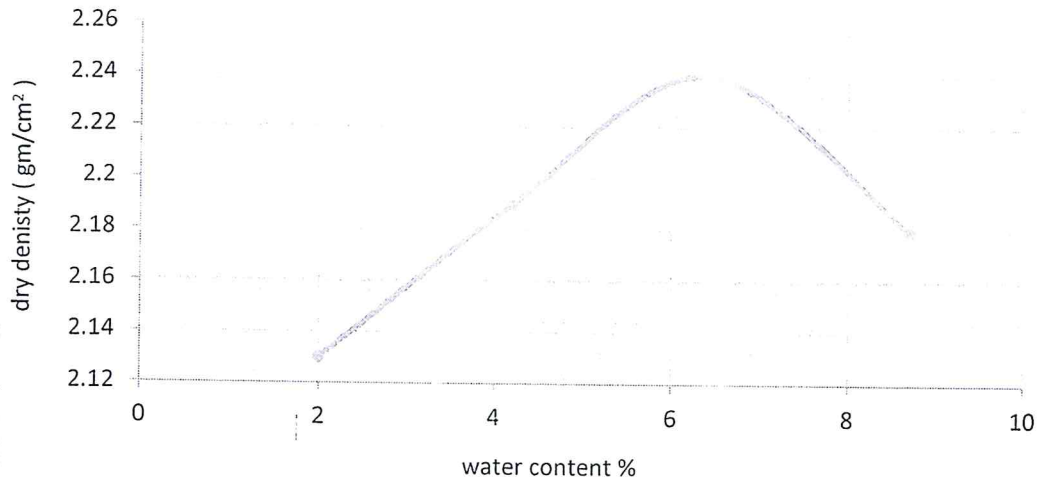
3 El Malek El Agha Street
Zamalek, Cairo
Tel/Fax 27367231 - 27369093



شركة المستقبل للمقاولات العامة
القاهرة - مصر
المبنى ٣ شارع النيل الأقبية

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature


م. المهندس
م. المهندس
219.994.437
3 شارع الملك الأفندي - الهرم - القاهرة

3 El Malek El Afrlal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093

IAS
ACCREDITED
Testing Laboratory

م. المهندس
الزمالك القاهرة
219.994.437

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

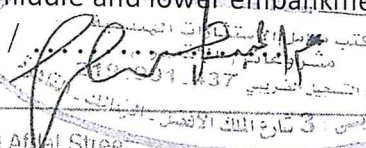
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.31
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48 %
	6.90	3.31	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.24 (gm /cm³)
At = 5.8 % 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 Malek El Afial Street,
Zamalek, Cairo
Tel: 21365723 27369093



إشادات الاعتماد
المرتبطة بالاعتماد
أحمد - المهندس

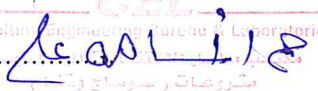
Company Name : شركه المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 2/9/2023
Soil type : طبقه استبدال
Location : ST from 660+180 To 660+200
Level : - 2.5 M
Report No. : 3

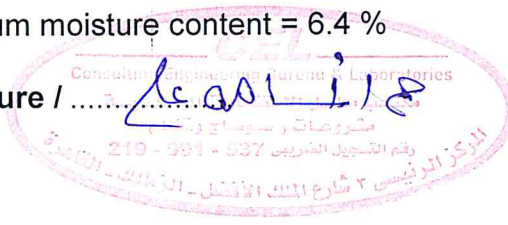
Compaction test by using Sand – Cone Test Method
ASTM D- 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	660+190	1640	2.35	5.8	2.22	99.0	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

Signature / 



Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

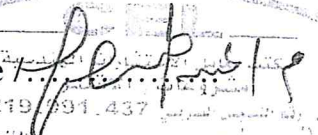
Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature 
219/991.437
المركز القومي للمعايير 3 شارع الملك الافضل - الزمالك - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.0
37.5	1.5	90.0
25	1	79.9
19	¾	70.1
12.50	½	57.8
9.50	3/8	47.0
4.75	4	35.1
2.00	10	30.6
0.425	40	20.3

Signature

3 El Malek El Afridi Street
Zamalek, Cairo
Tel/Fax: 27367231 - 27363090



إدارة المختبر
مكتب
مكتب

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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)	6.2

Signature 

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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 المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Soil Classification According To Project Specs :

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).	30.6	Max 50 %	-----	-----
0.425 mm (No. 40).	20.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

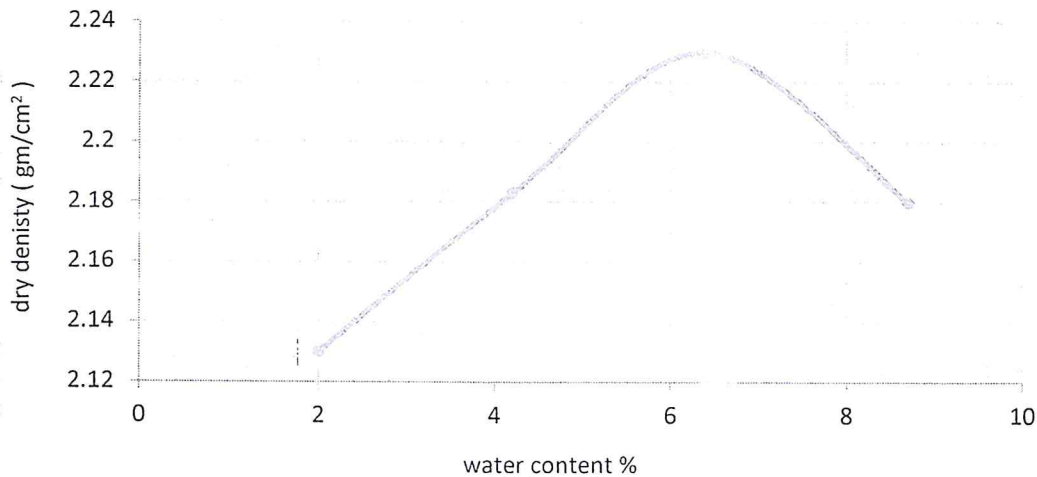
3 El Malek El Afral Street
Zamalek, Cairo
Tel & Fax 27367231 - 27363093



شركة المستقبل للمقاولات العامة
مكتب معامل الاستشارات الهندسية
219.991.437

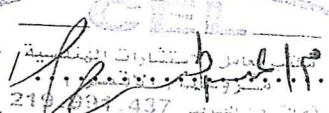
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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



- Max dry density (gm/cm²) : 2.23
- Optimum moisture content % : 6.4 %

Signature


مهندس
مكتب محامل الاستشارات الهندسية
219 497 437
3 شارع الملك الأفندي، الزمالة، القاهرة

3 El Malek El Afdal Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27365083



إشهاد الاعتماد
الرقم: 101/2019
تاريخ: 2019/09/04

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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	1.42
1.91	0.075	2.41
2.54	0.100	3.55
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.4 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.23 (gm /cm³)
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 / 

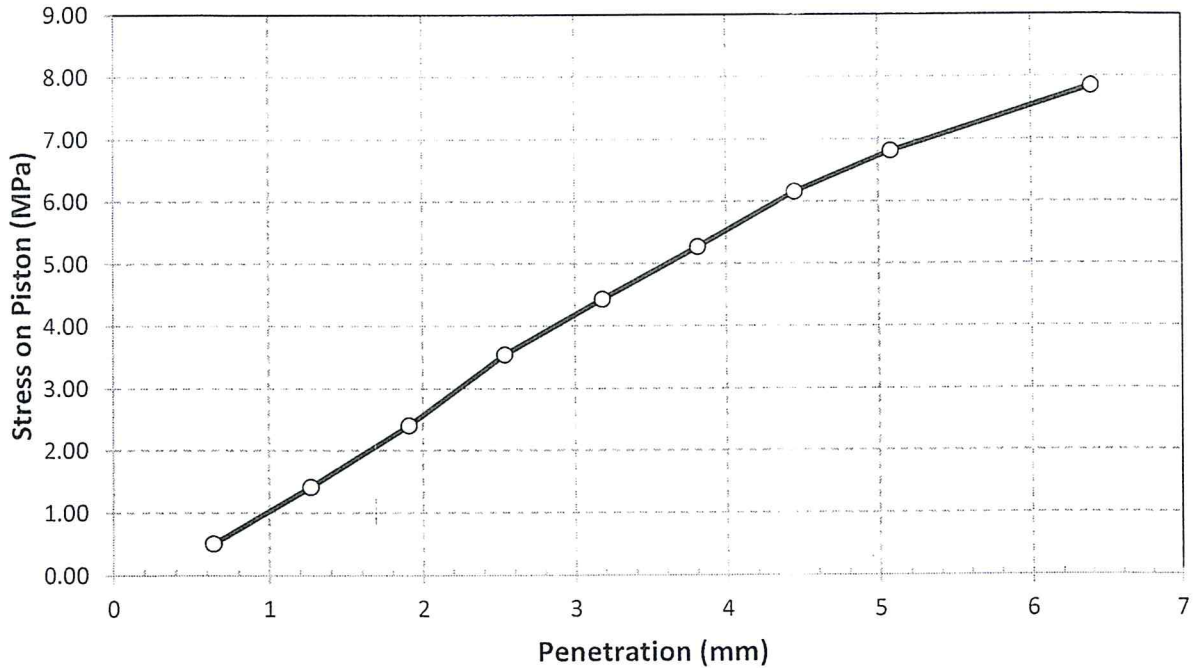
3 El Malek E Afdar Street
Zamalek, Cairo
Tel & Fax 27367231 - 27363093

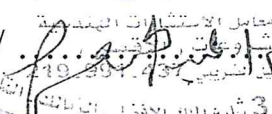


Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Load Penetration Curve of CBR Test

ASTM D-1883



Signature / 
مكتب معامل الاستشارات الهندسية
رقم الترخيص: 19-2014-0001
المركز الرئيسي: 3 شارع الملك الافضل - الهرم



Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركه المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 10/9/2023
Soil type : طبقه استبدال
Location : ST from 660+780 to 660+800
Level : - 3 M
Report No. : 23

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	660+795	1267	2.33	6.4	2.19	98.3%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 6.4 %

Signature



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Zamalek, Cairo
Tel & Fax : 27367231 - 27369093



٣ شارع الملك الافضل
الزمالك القاهرة
تليفون / فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٩٠٩٣

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

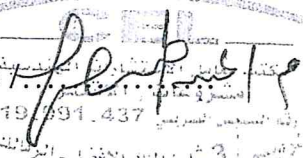
Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature 
219/991.437
شركة المستقبل للمقاولات العامة - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.0
37.5	1.5	90.0
25	1	79.9
19	¾	70.1
12.50	½	57.8
9.50	3/8	47.0
4.75	4	35.1
2.00	10	30.6
0.425	40	20.3

Signature

3 El Malek El Afridi Street
Zamalek, Cairo
Tel Fax 27367231 - 27363093

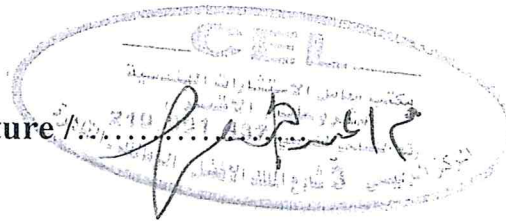


مكتب معامل الاستشارات
الهندسية العامة
الهاتف 27367231 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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)	6.2

Signature 

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

**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 المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Soil Classification According To Project Specs :

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).	30.6	Max 50 %	-----	-----
0.425 mm (No. 40).	20.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

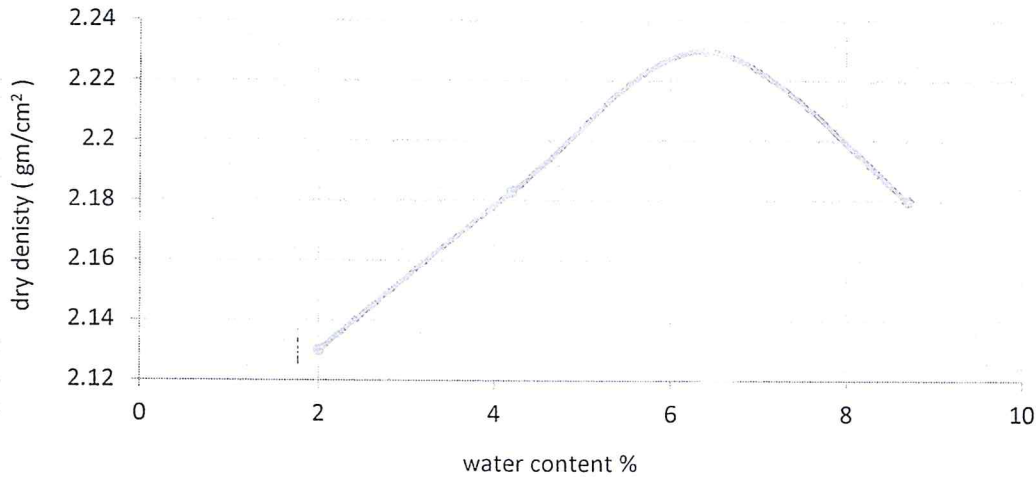
3 El Malek El Afral Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369093



شركة المستقبل
المركز الرئيسي
3 شارع الملك الافضل - الزمالك - القاهرة

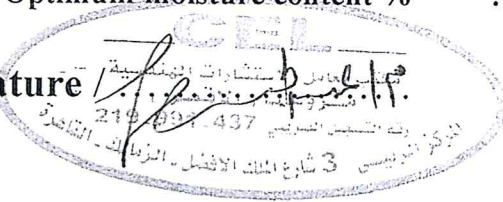
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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



- Max dry density (gm/cm²) : 2.23
- Optimum moisture content % : 6.4 %

Signature


مهندس محمد عبد الله
219 497 437
المركز الرئيسي 3 شارع الملك الافضل - الزمالة - القاهرة

3 El Malek El Afdal Street
Zamalek, Cairo
Tel & Fax : 27363231 - 27363093



مركز الملك الافضل
الزمالك - القاهرة
تليفون : 27363231 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

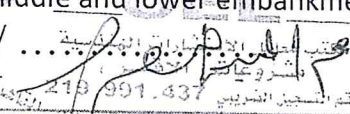
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.55
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.4 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.23 (gm /cm³)
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 / 

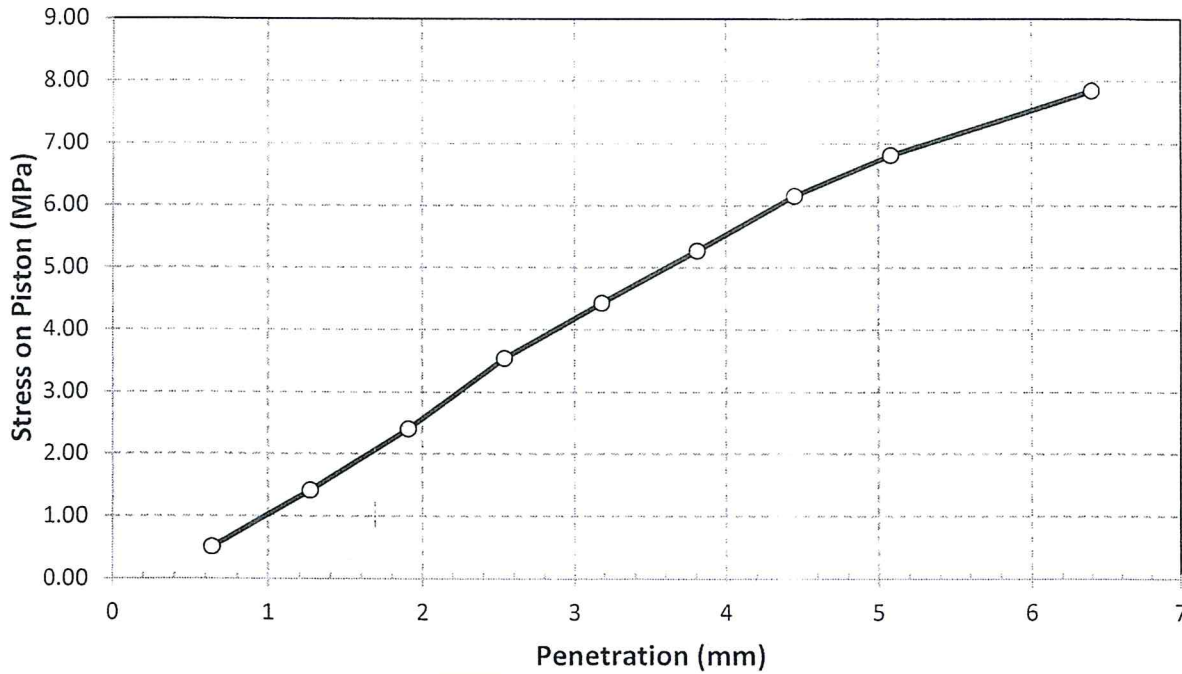
3 El Malek E' Afdal Street
Zamalek, Cairo
Tel & Fax 27367291 - 27363093



3 شارع الملك الافضل - الزمالك
القاهرة
الهاتف 27367291 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

CEL
مكتب معامل الاستشارات الهندسية
ش.م.م
رقم الترخيص: 1994437
المركز الرئيسي: 3 شارع الملك الافضل - الزمالك
القاهرة

3 El Malek El Afdal Street
Zamalek, Cairo.
Tel & Fax 27367231 - 27369093



أش. الملك الأفضل
الزمالك، القاهرة
ليسانس - 1994437

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركه المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 16/9/2023
Soil type : Middle Embankment
Location : ST from 660+300 to 660+400
Level : - 2 M
Report No. : 31

**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	660+320	1368	2.35	6	2.22	99.2%	Comply
2	660+360	1408	2.28	5.6	2.16	96.3%	Comply
3	660+380	1417	2.28	5.8	2.16	96.3%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



٢ ش الملك الأفضل
الزمالك القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature / ...
مكتب معامل الاستشارات الهندسية
مشاريع , القاهرة
رقم الترخيص : 219.991.437
المركز الرئيسي : 3 شارع الملك الأشرف - الزمالة - القاهرة

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	89.1
25	1	78.8
19	$\frac{3}{4}$	70.0
12.50	$\frac{1}{2}$	57.9
9.50	$\frac{3}{8}$	47.6
4.75	4	38.0
2.00	10	25.4
0.425	40	15.4

Signature /



3 El Malek El Afrdal Street
Zamalek, Cairo
Tel& Fax : 27367231 - 27363693



إلى السيد المهندس
مهندس
المهندس

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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)	7.1

Signature /



Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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 Malek El Afdal Street
Zamalek, Cairo
Tel & Fax: 27367237 27367093



مكتب معامل الاستشارات الهندسية
القاهرة
3 شارع الملك فيصل، القاهرة

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Soil Classification According To Project Specs :

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).	25.4	Max 50 %	-----	-----
0.425 mm (No. 40).	15.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	7.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /

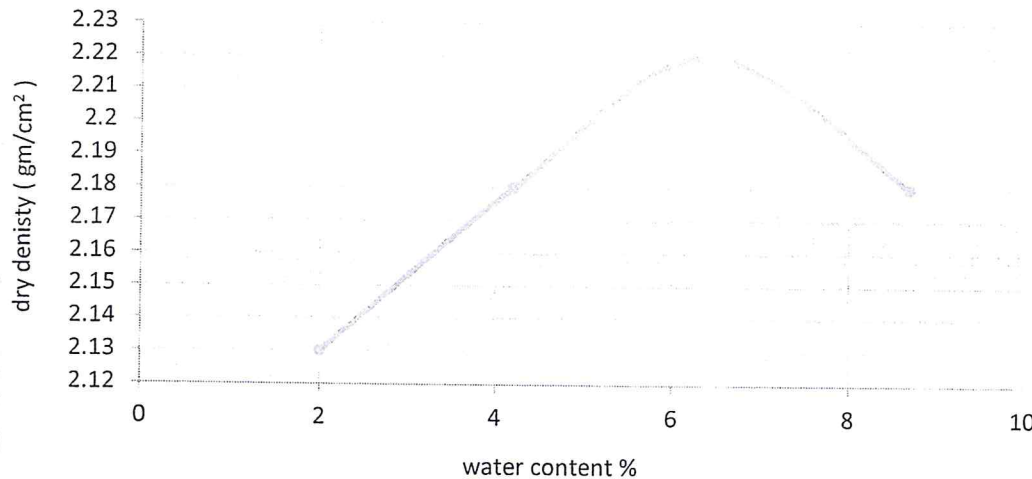
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



إلى السيد المهندس
الزمالك - القاهرة
تاريخ: 12/08/2023

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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 /

مكتب معامل الاستشارات الهندسية
3 شارع الملك الأفدال - الزمالك - القاهرة
CONSULTING ENGINEERING BUREAU & LABORATORIES

3 El Malek El Afdal Street
Zamalek, Cairo
Tel & Fax : 2736723 - 27363093



إلى السيد المهندس
السيد المهندس
السيد المهندس

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

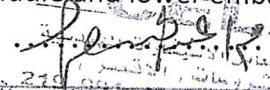
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.34
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48.4 %
	6.90	3.34	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.22 (gm /cm³)
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.

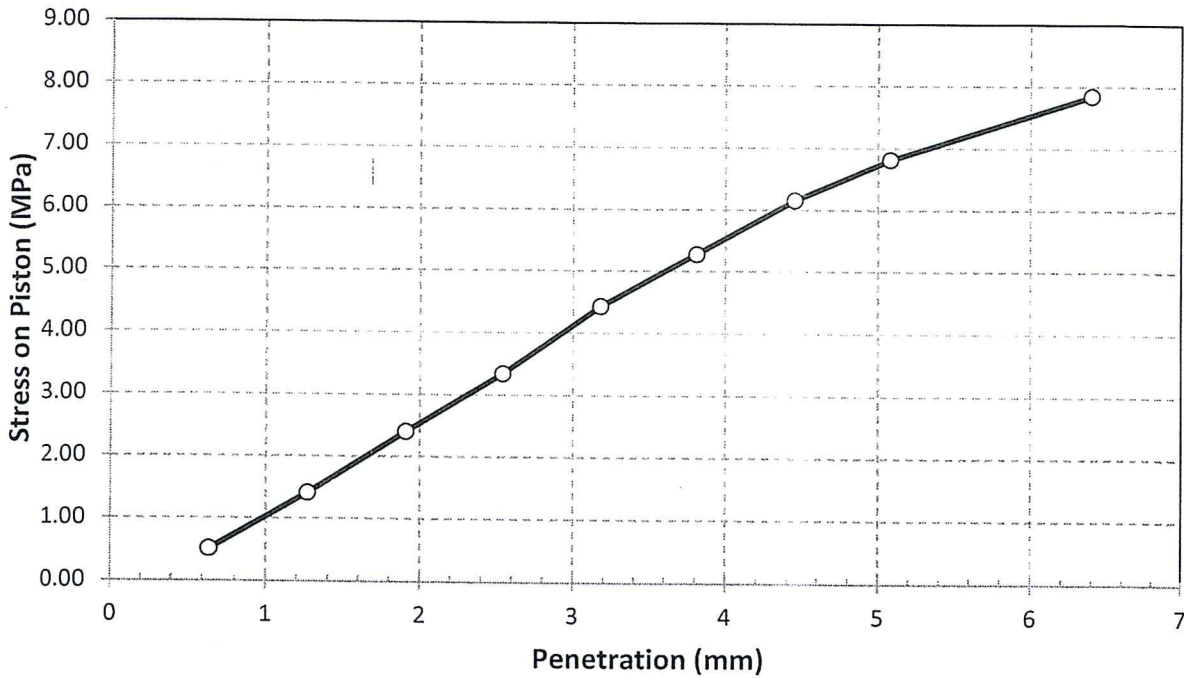
Signature / 

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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



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إلى لهات الامتداد
الرمال البامدة
تجديد الفاكس : ٢٧٣٦٧٠٠١ - ٢٧٣٦٧٠٠٢

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 12/9/2023
Soil type : Middle Embankment
Location : ST from 659+980 to 660+040
Level : - 2. 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	660+020	2136	2.26	6.4	2.13	95.0%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

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مكتب معامل الإستشارات الهندسية
مشاريع (سوهاج وقنا)
رقم التسجيل الضريبي 537 - 991 - 219
المركز الرئيسي ٢ شارع الملك الأفضل - الزمالك - القاهرة

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature / ... 
مكتب محامل الاستشارات الهندسية
مشاريع ، الأقسام
رقم الترخيص 219.991.437
المركز الرئيسي 3 شارع الملك الأفندي - الزمالك - القاهرة

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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)	7.1

Signature /

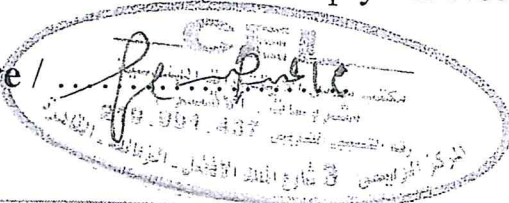
Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Soil Classification According To Project Specs :

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).	25.4	Max 50 %	-----	-----
0.425 mm (No. 40).	15.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	7.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



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إس إس إنستيتيوت
للإختبار والمختبر
للمواد الإنشائية

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

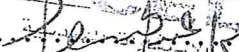
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.34
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48.4 %
	6.90	3.34	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.22 (gm /cm³)
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.

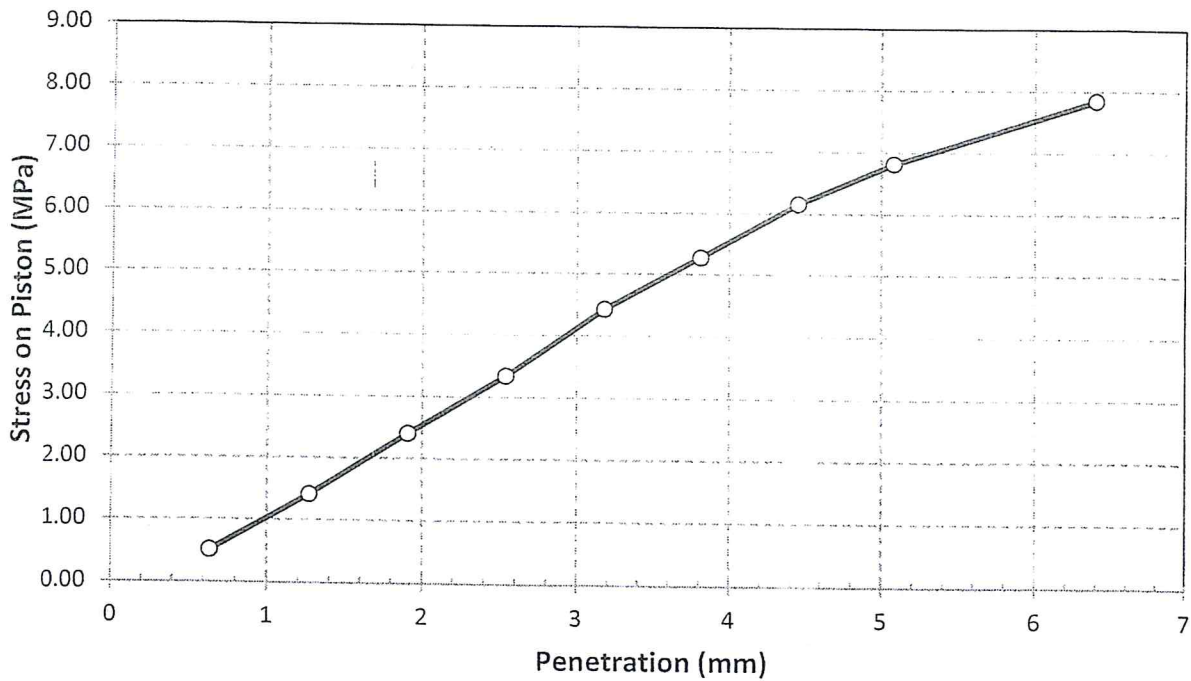
Signature / 

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Zamalek, Cairo
Tel & Fax 2736722 2736309



Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



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مكتب معامل الاستشارات الهندسية
التمثيل الاداري
للمهندسين والاعمال الهندسية

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 4/9/2023
Soil type : طبقه استبدال
Location : ST from 660+300/660+320
Level : - -3 M
Report No. : 4

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	660+310	1544	2.33	6.4	2.19	98.1	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.23 gm/cm³
- At optimum moisture content = 6.4 %

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رقم التسجيل المهنى 213 - 214 - 215
المركز الرئيسى 2 شارع الميقاتى - 213 - 214 - 215

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

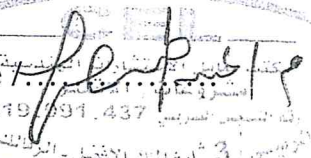
Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature 
219 694 437
مكتب محامل الاستشارات الهندسية - القاهرة
3 شارع النيل - النيل - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.0
37.5	1.5	90.0
25	1	79.9
19	¾	70.1
12.50	½	57.8
9.50	3/8	47.0
4.75	4	35.1
2.00	10	30.6
0.425	40	20.3

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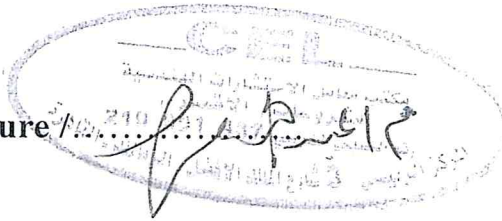
مكتب الاستشارات الهندسية
مركز التحليلات
مركز الأبحاث

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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)	6.2

Signature /

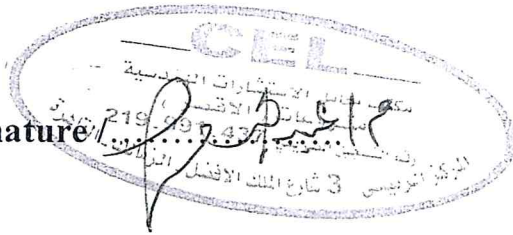


Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

**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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219 69 437
3 شارع الملك الافضل
القاهرة

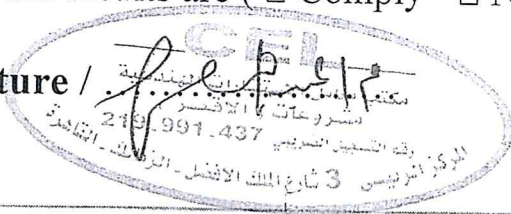
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Soil Classification According To Project Specs :

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).	30.6	Max 50 %	-----	-----
0.425 mm (No. 40).	20.3	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	6.2	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /


مهندس
محمود محمد
219.991.437
المركز الرئيسي 3 شارع الملك الأفطس - الزمالك - القاهرة

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شركة محامل الاستشارات الهندسية
محمود محمد
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المركز الرئيسي 3 شارع الملك الأفطس - الزمالك - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

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	1.42
1.91	0.075	2.41
2.54	0.100	3.55
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.4 %
	6.90	3.55	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.23 (gm /cm³)
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.

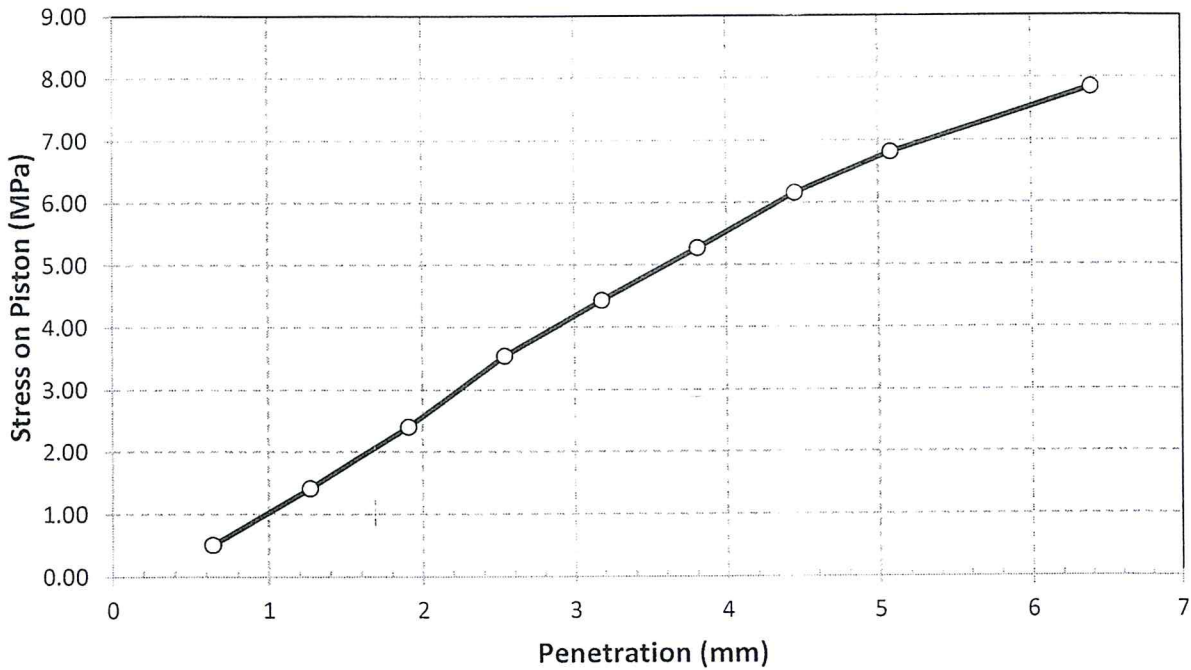
Signature / 

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Zamalek, Cairo
Tel & Fax: 27367201 - 27363093



Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+500 E=482567.0777 N=2847847.7656
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 8/8/2023
Reporting Date : 12/8/2023
Reporting No. : 04

Load Penetration Curve of CBR Test
ASTM D-1883



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CEL
مكتب معامل الاستشارات الهندسية
رقم التسجيل 19304
المركز الرئيسي : 3 شارع الملك الافضل - الزمالة

3 El Malek El Afrdal Street
Zamalek, Cairo.
Tel & Fax 27367231 - 27363093



اشاد الملك الافضل
الوزارة القاهرة
البريد : 11511



Consulting Engineering Bureau & Laboratories

**مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي**

Company : شركة المستقبل

Project : Electric Express Train - Sector (5) – Qous 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 660+800 to 660+900
Station : 660+850
Level : -2.5
Test Date : 04/09/2023
Report Date : 07/09/2023
Type of soil : Original earth
Report No. : 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 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 scale capacity 700 Bar (Enerbac)
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 kg/cm²
6. The load 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 completed within one minute
8. The load 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 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



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مشروعات محافظات الوجه القبلي

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 : $E_{v2} > 40$ MPa

Item	Descriptions
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
date of measurement	: 04/09/2023
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_{v2} / E_{v1} Ratio
	From	To			E_{v1} (MPa)	E_{v2} (Mpa)	
1	660+800	660+900	660+850	-2.5	97.5	162.1	1.66

Signature /

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Zamalek, Cairo.
Tel.& Fax : 27367231 - 27363093



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مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 660+850
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

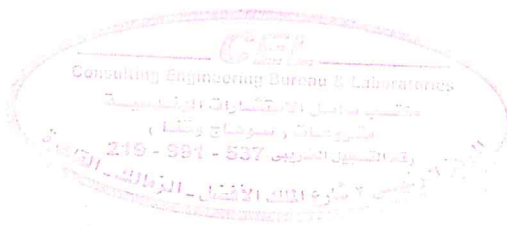
Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm2		mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.90	0.10	19.89	0.11	0.11
2	1.66	19.79	0.21	19.71	0.29	0.25
3	2.50	19.61	0.39	19.46	0.54	0.47
4	3.33	19.42	0.58	19.29	0.71	0.65
5	4.17	19.30	0.70	19.12	0.88	0.79
6	5.00	19.16	0.84	19.00	1.00	0.92

Unloading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm2		mm		mm	
1	2.50	19.24	0.76	19.09	0.91	0.84
2	1.25	19.36	0.64	19.19	0.81	0.73
3	0.100	19.69	0.31	19.59	0.41	0.36

Loading Stage (2)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm2		mm		mm	
0	0.83	19.50	0.50	19.48	0.52	0.51
approximately equ	1.66	19.36	0.64	19.30	0.70	0.67
stress is reached.						
2	2.50	19.25	0.75	19.19	0.81	0.78
3	3.33	19.14	0.86	19.09	0.91	0.89
4	4.17	19.00	1.00	18.97	1.03	1.02



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تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

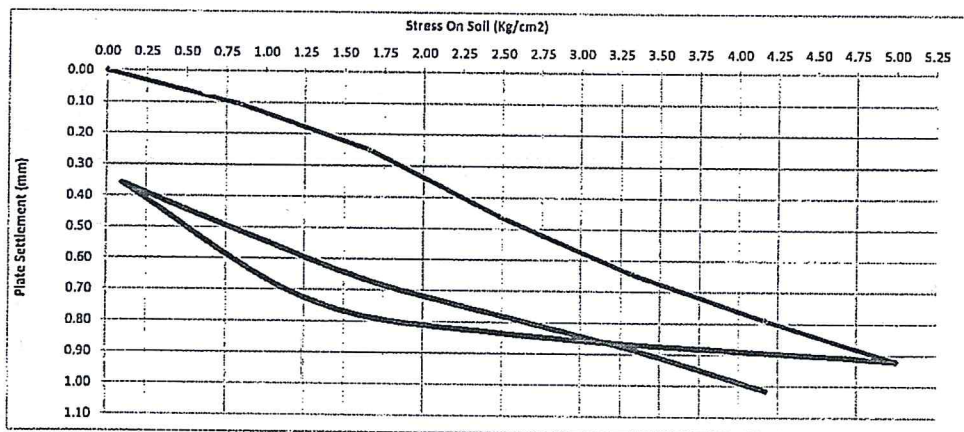


Consulting Engineering Bureau & Laboratories

مكتب معامل الإستشارات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة المستقبل
Project : Electric Express Train - Sector (5) - Qous to Arment.
Test Date : 04/09/2023
report date : 07/09/2023
Station : 6601850
Test No. : 1

Nonrepetitive Static Plate Load Tests of Soils
DIN 18134



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	586	1172.8	1766.3	2352.6	2946.1	3532.5
Stress (Kg/cm2)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.11	0.25	0.47	0.65	0.79	0.92

D (mm) = 300	S1 (mm) = 0.22	S2 (mm) = 0.67	ΔS = 0.45
Ev1 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	97.5		

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	586.395	1172.8	1766.3	2352.6	2946.1
Stress (Kg/cm2)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.36	0.51	0.67	0.78	0.89	1.02

D (mm) = 300	S1 (mm) = 0.64	S2 (mm) = 0.91	ΔS = 0.27
Ev2 (MPa) = $(0.75 \cdot D \cdot \Delta\sigma) / \Delta S$	162.1		

UnLoading (1)	1	2	3	4
Stage(Kg)	3533	1766	884	71
Stress (Kg/cm2)	5.00	2.50	1.250	0.10
Settlement (mm)	0.92	0.84	0.73	0.36

$$Ev2/Ev1 = 1.66$$

Ev1 = Modulus of deformation during the loading stage.

Ev2 = Modulus of deformation during the Reloading stage.

D = Plate diameter (mm)

Ds = The difference between 0.3 and 0.7 from the maximum loading (smax) (kg/cm²)

DS = Difference in settlements corresponding to 0.3 and 0.7 from the maximum loading (mm)



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Zamalek, Cairo.
Tel. & Fax : 27367231 - 27363093



ش ٣ الملك الأفضل
الزمالك - القاهرة
تليفون + فاكس : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣
www.cel-egypt.com

Company Name : شركه المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 16/9/2023
Soil type : Middle Embankment
Location : ST from 660+400 to 660+480
Level : - 2 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	660+410	1366	2.30	6	2.17	96.7%	Comply
2	660+430	1397	2.26	5.5	2.15	95.8%	Comply
3	660+470	1501	2.28	6.4	2.14	95.6%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

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مكتب معامل الاستشارات الهندسية
شروعات (جهاز وقناة) ...
رقم الترخيص 537 - 991 - 219
المرکز الرئيسي ٢ شارع الملك الأفضل - الزمالك - القاهرة

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Zamalek, Cairo.
Tel& Fax : 27367231 - 27363093



٢ شارع الملك الأفضل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature /...



Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	89.1
25	1	78.8
19	$\frac{3}{4}$	70.0
12.50	$\frac{1}{2}$	57.9
9.50	$\frac{3}{8}$	47.6
4.75	4	38.0
2.00	10	25.4
0.425	40	15.4

Signature /



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Zamalek, Cairo
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مركز اختبار المعايير
بمبنى
الزمالك - القاهرة

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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)	7.1

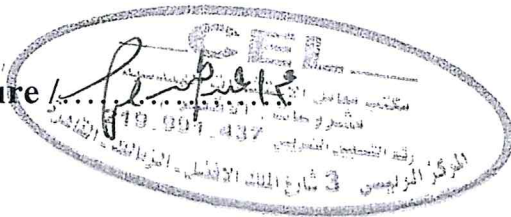
Signature /

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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


مكتبة محامل الاستشارات الهندسية
قائمتها ورقعتها : 19.099.437
المركز الرئيسي : 3 شارع الملكة افرات - الجيزة - الجيزة - الجيزة

3 El Malek El Afral Street
Zamalek, Cairo
Tel/Fax : 27369723 - 27369093



إلى السيد المهندس
محمود الناصر
مهندس استشاري
مكتب محامل الاستشارات الهندسية

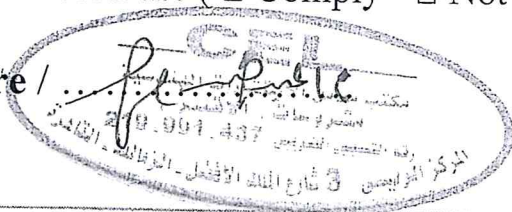
Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Soil Classification According To Project Specs :

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).	25.4	Max 50 %	-----	-----
0.425 mm (No. 40).	15.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	7.1	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /



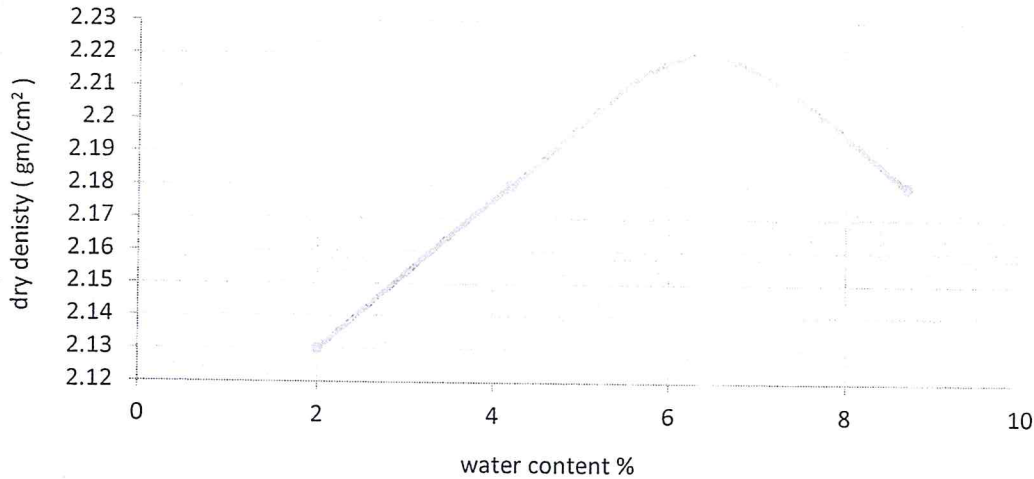
3 El Malek El Afdal Street
Zamalek, Cairo.
Tel& Fax : 27367231 - 27367003



إلى السيد المهندس
الزمالك القاهرة
27367231 - 27367003

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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



- Max dry density (gm/cm²) : 2.22
- Optimum moisture content.% : 6.4 %

Signature /

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إدارة المختبر
لرصد الجودة
مكتب معامل الاستشارات الهندسية

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

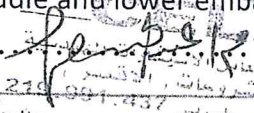
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.34
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48.4 %
	6.90	3.34	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.22 (gm /cm³)
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 / 

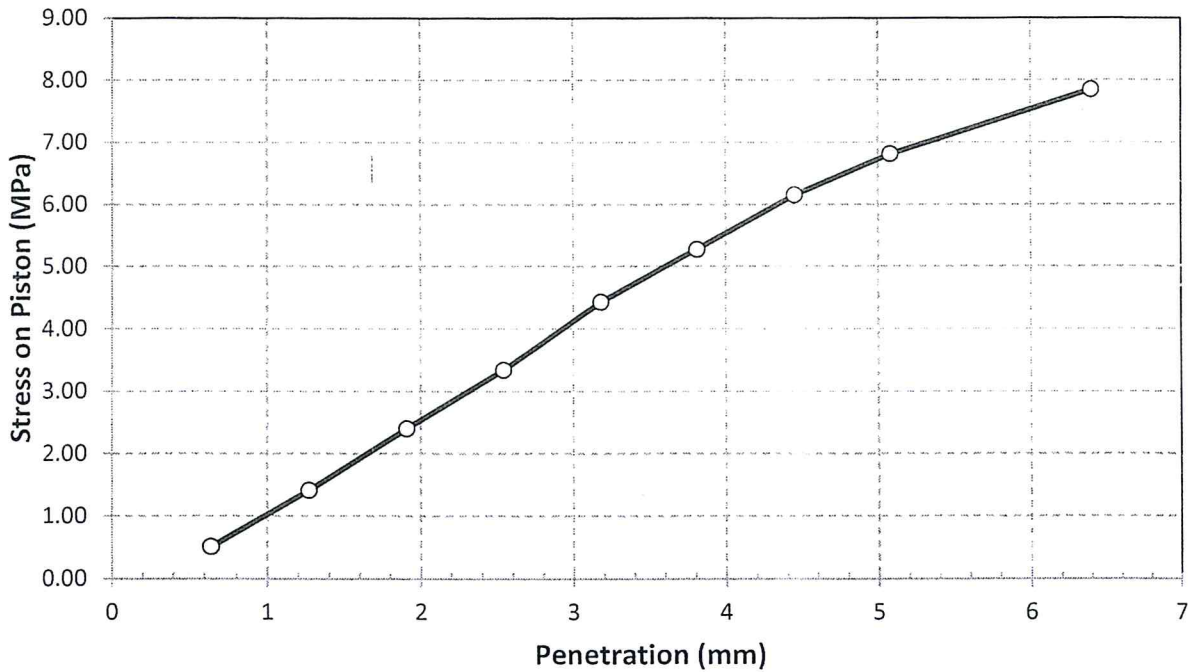
3 El Malek El Farafra Street
Zaralek, Cairo
Tel & Fax 2736723 27363093



إشراف المهندس
أحمد السيد
مهندس
مهندس

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



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مركز أبحاث
الزمالك القاهرة
تليفون - فاكس : 2736723 - 27363093

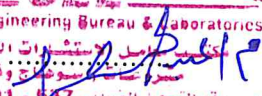
Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 12/9/2023
Soil type : طبقه استبدال
Location : ST from 560+860 to 661+020
Level : - 3 M
Report No. : 29

**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	560+880	1921	2.37	6	2.23	99.8%	Comply
2	560+930	1886	2.29	5.5	2.17	96.9%	Comply
3	560+010	1986	2.29	5.8	2.16	96.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

Signature : 

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3 شارع الملك الافضل
الزمالك - القاهرة
تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣ فاكس :

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature / ...



Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	89.1
25	1	78.8
19	3/4	70.0
12.50	1/2	57.9
9.50	3/8	47.6
4.75	4	38.0
2.00	10	25.4
0.425	40	15.4

Signature /



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Zamalek, Cairo
Tel & Fax : 2736723 - 27363093



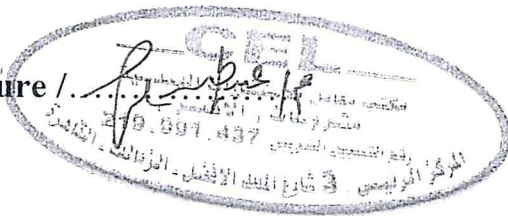
مكتب معامل الاستشارات الهندسية
زمالك - القاهرة
219.991.437

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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)	7.1

Signature /

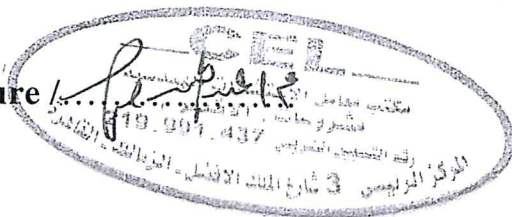


Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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


مكتب معامل الاستشارات الهندسية
19.091.437
رقم التسجيل المميز
الدكتور الزاهي 3 شارع الملك فيصل - القاهرة

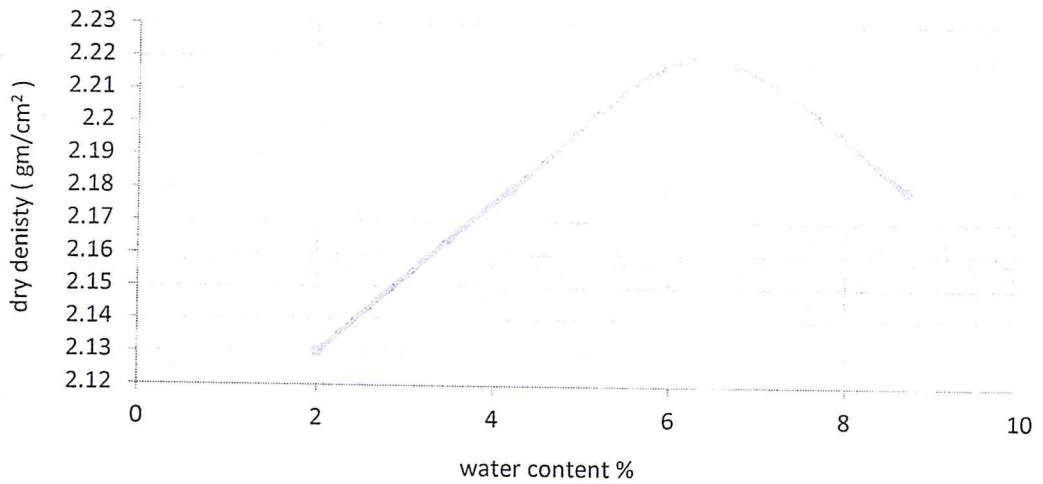
3 El Malek El Afdal Street
Zamalek, Cairo
Tel & Fax 2736723 27363093



إلى السيد الأستاذ
المهندس
المهندس
المهندس

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

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



- Max dry density (gm/cm²) : 2.22
- Optimum moisture content % : 6.4 %

Signature /

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Zamalek, Cairo
Tel & Fax : 2736723 - 27363093



إلى السيد المهندس
مهندس المهندس
المهندس المهندس

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

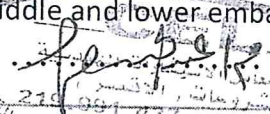
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.34
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48.4 %
	6.90	3.34	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.22 (gm /cm³)
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.

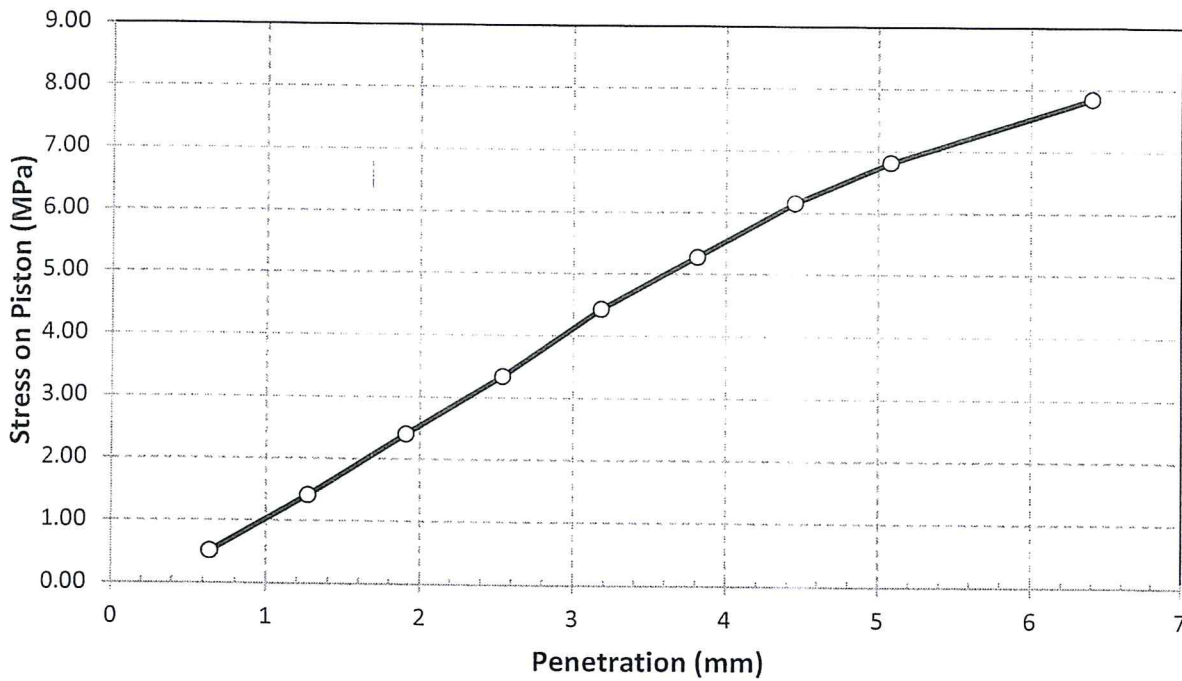
Signature / 

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Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 659+800 E=482835.0901 N=2848386.8939
Type of sample : Soil Embankment (Upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 02

Load Penetration Curve of CBR Test
ASTM D-1883



Signature



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Zamalek, Cairo
Tel & Fax : 2736723 - 27363093



إس إس إم إل الاستشارات
الهندسية
المعتمدة
الرقم : ٢٧٣٦٧٢٣ - ٢٧٣٦٣٠٩٣

Company Name : شركة المستقبل
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 19/9/2023
Soil type : Middle Embankment
Location : ST from 660+580 to 660+700
Level : - 2.5 M
Report No. : 33

**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	660+620	1521	2.25	5.5	2.13	97.6%	Comply
2	660+650	1517	2.30	6.4	2.16	99.2%	Comply
3	660+680	1876	2.20	6	2.08	95.4%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.24 gm/cm³
- At optimum moisture content = 6.4 %

Signature: /

Consulting Engineering Bureau & Laboratories

مكتب معامل الاستشارات الهندسية

مشروعات (سوهاج وقفا)

رقم التسجيل الضريبي: 537 - 991 - 219

المركز الرئيسي ٣ شارع الملك الأفطيل - الزمالك - القاهرة

3 El Malek El Afdal Street
Zamalek, Cairo.

Tel& Fax : 27367231 - 27363093



٣ شارع الملك الأفطيل

الزمالك - القاهرة

تليفون : ٢٧٣٦٧٢٣١ - ٢٧٣٦٣٠٩٣

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 8 / 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

Signature

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

Signature

3 El Malek El Afrtal Street
Zamalek, Cairo
Tel & Fax : 27367231 - 27363093

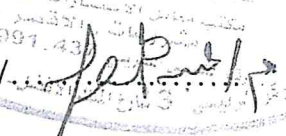


شركة المستقبل للمقاولات العامة
الرملة، القاهرة
الهاتف : 27367231 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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)	5.6

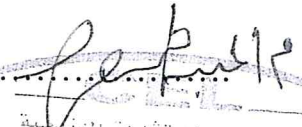
Signature / 
219.991.43

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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 /


مكتب بحايل الاستشارات الهندسية
شروعات و الاقنيسر
رقم الترخيص 219.991.437
المركز الرئيسي 3 شارع الملك الافضل - الزمالة - القاهرة

3 El Malek El Afridi Street
Zamalek, Cairo
Tel & Fax 27367231 - 27363093



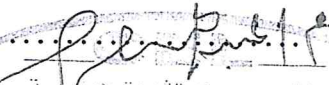
شركة بحايل
للمقاولات والهندسة
القاهرة - مصر

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature / 

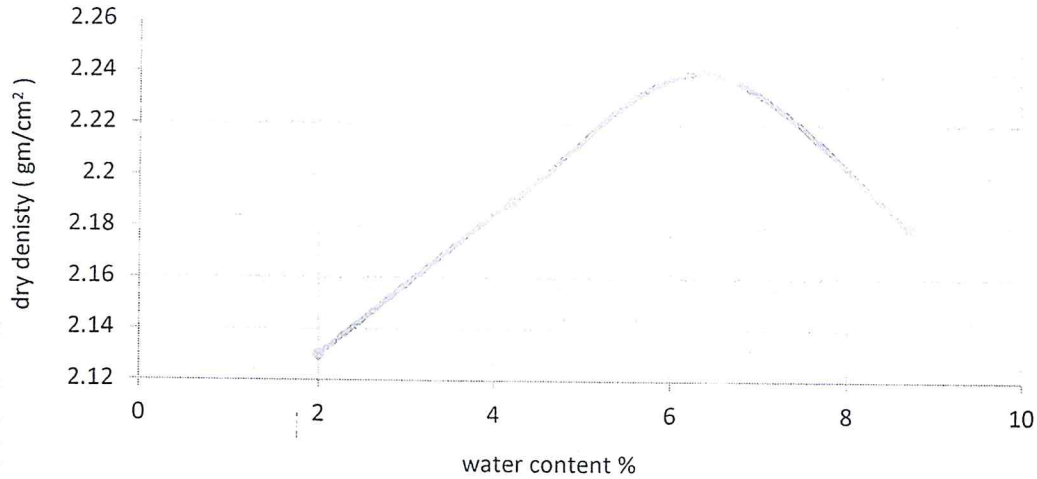
3 El Malek El Agha Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369093



شركة المستقبل للمقاولات العامة
مكتب معامل الاستشارات الهندسية
3 شارع الملكة اللفاف - الزمالك - القاهرة
تليفون : 27367231 - 27369093
فاكس : 27367231 - 27369093

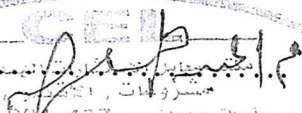
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature


م. المهندس
مستشارات ، م. م.
البريد الإلكتروني : 219.994.437
البريد الإلكتروني : 3 شارع الملك الأفندي - الزمالك - القاهرة

3 El Malek El Afridi Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



ش.م.م. الملك الأفندي
الزمالك - القاهرة
تليفون : 27367231 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

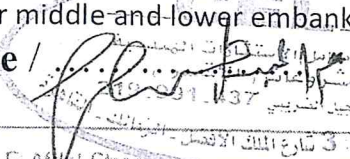
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.31
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48 %
	6.90	3.31	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.24 (gm /cm³)
At = 5.8 % 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 Malek El Afendi Street
Zamalek, Cairo
Tel & Fax: 2/366231 2/3662093



مكتب محامل الاستشارات الهندسية
الزمالك - القاهرة
الهاتف - الفاكس : 2/366231 - 2/3662093

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 17/09/2023
Soil type : Middle Embankment
Location : ST from 659+820 to 659+840
Level : - 4-5 M
Report No. : 52

**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	659+830	1528	2.21	6.4	2.08	95.5%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.18 gm/cm³
- At optimum moisture content = 6.4 %

Signature /



Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

Attached here with the delivered on 8 / 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

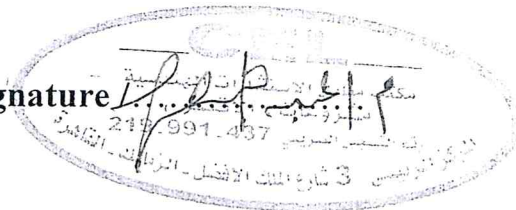
Signature

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

Signature


2147991437
شركة المستقبل للمقاولات العامة

3 El Malek El Afdal Street
Zamalek, Cairo
Tel. Fax : 27367231 - 27363090



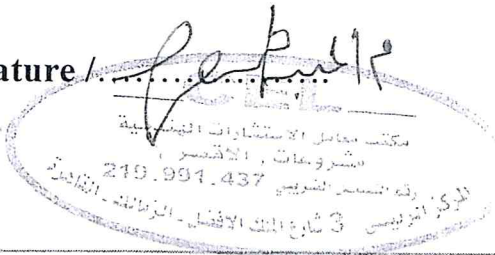
شركة المستقبل للمقاولات العامة
البريد الإلكتروني : info@cel-eg.com
البريد الإلكتروني : info@cel-eg.com

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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
Tel & Fax : 27367231 - 27363093



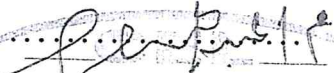
مكتب محامل الاستشارات الهندسية
شروعات, الأقمير
رقم الترخيص: 219.994.437
الدكتور أمروني 3 شارع الملك الأفندي - الزمالة - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature / 

مكتب معامل الاستشارات الهندسية
مشروعات ، الأتمتة
رقم التسجيل الرئيسي 2191991.437
الرجس 3 شارع النيل الألف - الزمالة

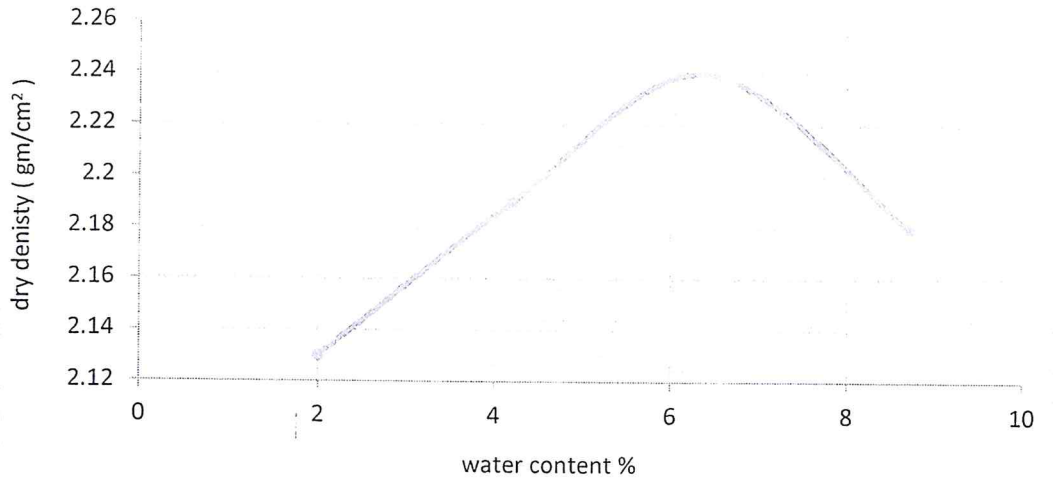
3 El Malek El Agha Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369093



شركة الاستشارات
هندسة
مصر - القاهرة

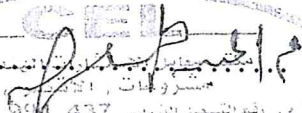
Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature


م. الجبار
مستشار
رقم التسجيل المهنى 219.994.437
المركز الرئيسى 3 شارع الملكة ايفلين - الزمالك - القاهرة

3 El Malek El Afrtal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



ش. الملكة ايفلين
الزمالك - القاهرة
الهاتف - الفاكس : 27367231 - 27363093

CEL
Consulting Engineering Bureau & Laboratories
مكتب معامل الاستشارات الهندسية

Company Name : شركة الكرم
Project : Electric Express Train – HSR From Qous To Armant
Testing Date : 17/09/2023
Soil type : Middle Embankment
Location : ST from 659+860 to 659+880
Level : - 4 M
Report No. : 53

**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	659+870	1606	2.22	6	2.09	95.9%	Comply

• Degree of compaction based on proctor test dated At

- Max. dry density = 2.18 gm/cm³
- At optimum moisture content = 6.4 %

Signature



3 El Malek El Afdal Street
Zamalek, Cairo.
Tel & Fax : 27367231 - 27363093



3 شارع الملك الافضل
الزمالك القاهرة
تليفون : 27367231 - 27363093
فاكس : 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Dear Gentleman,

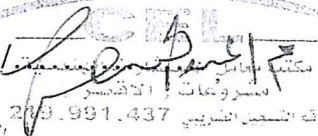
Attached here with the delivered on 8 / 8 / 2023

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

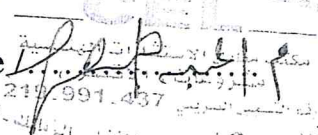
Signature


مكتب معامل الاستشارات الهندسية
رقم التسجيل التجاري 27363093
الزماملة - شارع الملك الأفندي - الزماملة - القاهرة

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.7
37.5	1.5	90.8
25	1	80.6
19	$\frac{3}{4}$	71.0
12.50	$\frac{1}{2}$	58.1
9.50	$\frac{3}{8}$	47.4
4.75	4	36.0
2.00	10	24.6
0.425	40	15.8

Signature 
219.991.437
3 شارع الملك الأفطال - الزمالك - القاهرة

3 El Malek El Afrtal Street
Zamalek, Cairo
Tel & Fax : 27367531 - 27363093

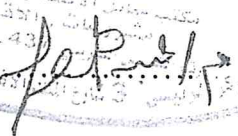


شركة المستقبل للمقاولات العامة
الزمالك - القاهرة
تليفون : 27367531 - 27363093

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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)	5.6

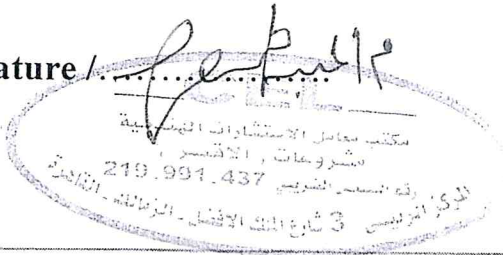
Signature / 
219.997.43
مكتب محامل الاستشارات الهندسية

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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 /



2 El Malek El Afridi Street
Zamalek, Cairo.
Tel & Fax 27367231 - 27363093



إلى إدارة المشروع
شركة المقاولات
القاهرة - مصر

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

Soil Classification According To Project Specs :

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).	24.6	Max 50 %	-----	-----
0.425 mm (No. 40).	15.8	Max 30 %	Max 50 %	-----
0.075 mm (No. 200).	5.6	Max 15 %	Max 15 %	Max 15 %
Characteristics of fraction passing 0.425 mm (No.40)				
Liquid Limit	-----	-----	-----	-----
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature /
مكتب معامل الاستشارات الهندسية
مشاريع و دراسات
رقم التسجيل المرفوض 219/991.437

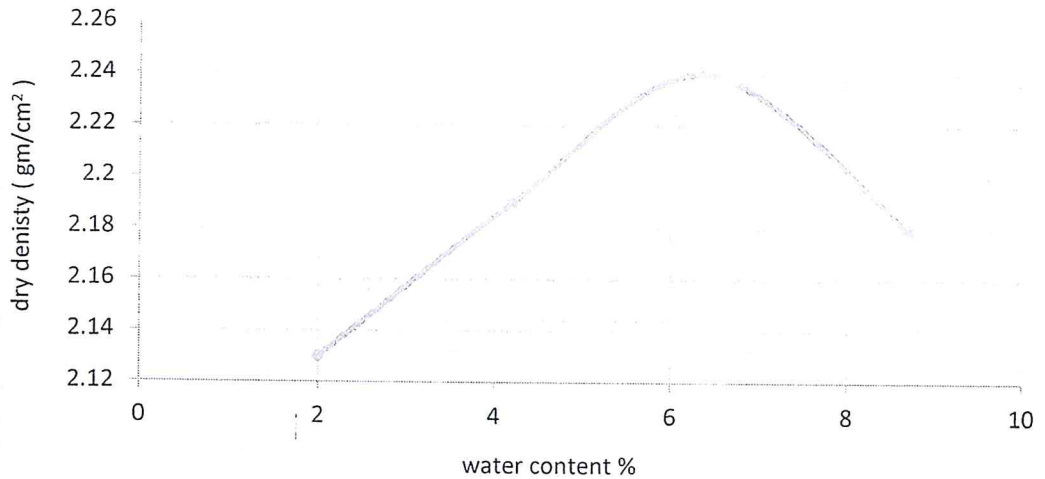
3 El Malek El Agha Street
Zamalek, Cairo
Tel & Fax 27367231 - 27369493



شركة المستقبل
مكتب معامل الاستشارات الهندسية
مشاريع و دراسات

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

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



- Max dry density (gm/cm²) : 2.24
- Optimum moisture content % : 5.8 %

Signature


م. المهندس
م. المهندس
219.504.437
المركز الرئيسي 3 شارع الملك الأفندي - الزمالك - القاهرة

3 El Malek El Afrtal Street
Zamalek, Cairo.
Tel & Fax: 27367231 - 27369093



ش.م.م. الملك الأفندي
الزمالك القاهرة
للمسحور

Company Name : شركة المستقبل للمقاولات العامة
Project : Electric Express Train – HSR From Qous To Armant
Location : st: 660+000 E=482747.8852 N=2848238.3271
Type of sample : Soil Embankment (upper Embankment 0.0 M)
Delivery Date : 08/08/2023
Reporting Date : 12/08/2023
Reporting No. : 03

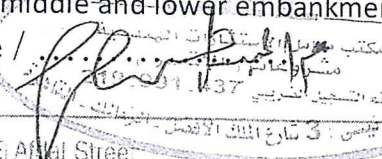
Test Results of California Bearing Ratio on Base Materials
ASTM D 1883

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.42
1.91	0.075	2.41
2.54	0.100	3.31
3.18	0.125	4.43
3.81	0.150	5.28
4.45	0.175	6.15
5.08	0.200	6.81
6.35	0.250	7.85

CBR Result	Stress (Mpa)		CBR %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	48 %
	6.90	3.31	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of = 2.24 (gm /cm³)
At = 5.8 % 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 Malek El Arfal Street,
Zamalek, Cairo.
Tel/Fax 2/36223 27369090



