



مخطط اعتماد حصر كميات



التاريخ: ٢٢/١٢/٢٠٢١

اسم المشروع: مشروع القطار الكهربائي السريع (٦ الكور - اموان - اوسميدل) القطاع الخامس:

قامت شركة برادات كوتك للاستشارات الهندسية المتعدنية (مستشارو V١) بحصر الكميات لجهة الطرق والكباري:

باعتبار الكميات المملوكة الخاصة بقرعة عبد الرحمن للتعمية الزراعية والمطوية والمقاولات
القطاع الذي تم الحصر فيه من الكم: ٦٧١٤٧٨ - الي ٦٧١٤٧٨ - ياول ١ كم

عدد (٢٠٢١/٢٠٢٢/٢٢) بتاريخ ٢٢/١٢/٢٠٢١

الكميات	الكمية بحصر المكتب	التصنيف	رقم المنطقة رقم	رقم المنطقة رقم	رقم
رسم على REV05	58440.19	رسم ارضية	672+190	671+780	1
رسم على REV05	15209.34	رسم ارضية	672+780	672+640	2
	73649.53	المجموع الكمية			

حضر جاري: (٢)

المراقب:

استلام ميزانية شعبة

قطاعات عرضية

شيت التسل ووضح به الكميات

مكتب استشارات اميكرام

المستشار العام: شركة اميكرام
MSR - Blue Line
المستشار العام: شركة اميكرام

مهندس الشركة: المنطقة

شركة عقاد البراهيم
للتصميم والدراسات الهندسية والمقاولات
ب.م.م. ٢٠٢١/٢٠٢٢/٢٢ - ٢٠٢١/٢٠٢٢/٢٢

مستشار عام: شركة اميكرام
Spectrum Consulting
مشروع القطار السريع



توضيح اعداد الحصر



شركة عبد الرحمن للتعمية الزراعية والمطرية والمقاولات

جدول توضيح اعداد الحصر				
رقم	من المحطة	الى المحطة	الكمية	REV
1	671+780	672+100	58440.18	REV 05
2	672+630	672+780	15209.34	REV 05
الاجمالي			73649.52	

مكتب استشاري اسكوترم





توضيح أعمال الحصر (صفحة ١)



شركة عبد الرحمن للتنمية الزراعية والعلفية والمقاولات

تمت توضيح به الكميات				
ترام	المساحة	Fill area	Fill volume	cum.Fill vol.
1	671+780.00	94.92	474.59	474.59
2	671+790.00	166.24	1780.37	1780.37
3	671+800.00	166.16	1661.90	3442.36
4	671+810.00	166.75	1664.54	5106.9
5	671+820.00	166.1	1664.25	6771.15
6	671+830.00	164.39	1662.46	8423.61
7	671+840.00	162.36	1633.74	10057.35
8	671+850.00	160.18	1612.69	11670.04
9	671+860.00	158.51	1593.40	13263.52
10	671+870.00	157.09	1578.03	14841.55
11	671+880.00	155.91	1565	16406.55
12	671+890.00	155.07	1554.91	17961.46
13	671+900.00	154.06	1550.16	19511.62
14	671+910.00	155.57	1552.67	21064.29
15	671+920.00	157.19	1563.81	22628.1
16	671+930.00	159.73	1584.51	24212.71
17	671+940.00	160.38	1600.56	25813.27
18	671+950.00	159.63	1600.06	27413.33
19	671+960.00	152.18	1659.07	28972.4
20	671+970.00	141.41	1407.97	30480.37
21	671+980.00	130.73	1360.72	31841.09

مكتب استشاري إسكالم

استشاري المساحة

مهندس الزراعة المتكاملة





توضيح أعمال الحصر (صفحة ٢)



شركة عبد الرحمن للتسليم الزراعية والطايريه والمعلومات

البيانات موضح به الكيف				
رقم	المساحة	Fill area	Fill volume	cum.Fill vol.
22	671+990.00	124.05	1273.9	30074.88
23	672+000.00	123.28	1236.66	34311.65
24	672+010.00	123.88	1234.82	35548.47
25	672+020.00	124.62	1241.5	36787.97
26	672+030.00	121.96	1232.92	38020.89
27	672+040.00	119.14	1205.53	39226.42
28	672+050.00	117.79	1184.66	40411.08
29	672+060.00	123.03	1204.12	41816.2
30	672+070.00	127.97	1255.01	42870.21
31	672+080.00	130.99	1294.77	44164.98
32	672+090.00	127.25	1291.16	45456.14
33	672+100.00	124.52	1258.82	46714.96
34	672+110.00	128.61	1266	47980.96
35	672+120.00	135.48	1320.82	49301.78
36	672+130.00	137.21	1363.47	50665.25
37	672+140.00	133.46	1353.3	52018.55
38	672+150.00	129.83	1316.41	53334.96
39	672+160.00	129	1294.15	54629.11
40	672+170.00	128.91	1289.51	55918.62
41	672+180.00	127.7	1283.02	57201.64
42	672+190.00	120.01	1238.55	58440.19
المجموع			63400.19	





توضيح احصال الحصى (صفحة ٢)

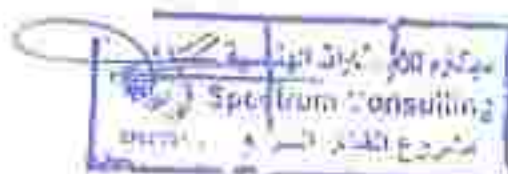


شركة عبد الرحمن للتعمية الزراعية والعقارية والمقاولات

شيت موضح به التفصيل				
الترتيب	المساحة	Fill area	Fill volume	cum.Fill vol.
1	672+640.00	117.2	1126.3	1126.3
2	672+650.00	117.86	1178.29	2304.59
3	672+660.00	112.62	1162.41	3454
4	672+670.00	103.84	1082.31	4536.31
5	672+680.00	96.54	1001.88	5538.19
6	672+690.00	90.92	937.3	6475.49
7	672+700.00	90.38	806.38	7381.87
8	672+710.00	81.94	811.46	8293.33
9	672+720.00	94.42	931.77	9225.1
10	672+730.00	87.78	860.88	10185.98
11	672+740.00	86.22	884.81	11170.89
12	672+750.00	102.36	1007.88	12178.78
13	672+760.00	107.83	1051.41	13230.19
14	672+770.00	112.27	1100.98	14331.17
15	672+780.00	83.38	878.17	15209.34
الاجمالي		15209.34		
الاجمالي الفعلي		73548.53		

مكتب استشاري اميكوم

استشاري المساحة



مشروع الغاز الكهربائي السريع الطرق المتفرعة								
تفصيل التكلفة حسب المرحلتين الأولى والثانية والمقاولات								
من شهر ٢٠٢٢/١٠/٢٥ إلى ٢٠٢٢/١٢/٣١								
بيان التكاليف حسب المرحلتين الأولى والثانية								
رقم	المرحلة	تكاليف التركيب	تكاليف الغاز في تربة	تكاليف الغاز في تربة	تكاليف الغاز في تربة	تكاليف الغاز في تربة	تكاليف الغاز في تربة	تكاليف الغاز في تربة
1	(85/2023/2024)	19,865,000	0	0	0	0	0	0
2	(457/2023/2024)	19,995,888	21778,092	43856,184	43856,184	9985,60	29406,83	0
3			4548,2	7240,938	7240,938	33788,029	0	0
4	(458/2023/2024)	19,995,888	13848,27	27890,54	27890,54	0	0	0
5			7,648	0	0	0	0	73049,69
6			0	0	0	0	0	0
7			26422,892	60796,842	60796,842	43343,888	29406,83	0
8			10845,37	37880,54	37880,54	0	0	73049,63
9			0	0	0	28455,147	0	0
10			23780,3328	48717,1678	48717,1678	28009,4068	0	0
11			12460,743	24821,488	24821,488	0	0	69987,8535
12			0	0	0	0	0	0
13			2642,2552	6076,8842	6076,8842	4334,3888	0	0
14			1384,627	2789,054	2789,054	0	0	3882,4788

مستقر في مكتب المحاسب
 ٢٠٢٢/١٢/٣١
 ٢٠٢٢/١٢/٣١
 ٢٠٢٢/١٢/٣١

مستقر في مكتب المحاسب
 ٢٠٢٢/١٢/٣١
 ٢٠٢٢/١٢/٣١
 ٢٠٢٢/١٢/٣١

شركة هياكل الغاز
 للهندسة والبناء والمقاولات
 ٢٠٢٢/١٢/٣١
 ٢٠٢٢/١٢/٣١



شركة عبد الرحمن
مستشارين في الزراعة والصيد

مصلحة الزراعة والصيد

السيد المهندس / رئيس الإدارة المركزية للمنطقة الشمالية - قنا

شعبة تربية وصيد الأسماك

والإحقة إلى أصل القناة جسر الترابي القطار السريع (أكوير - بوسيل) القطاع الخامس وإلى الاتصال المسافة إلى شركة عبد
رحمن للتنمية الزراعية والمقاولات

تتكون من محيط علم ميعتكم أن الشركة مسئلة إليها أصل في القطاع من 691+783 إلى 693+783 بطول ٢ كم ومن 780+780 إلى
672+780 بطول ٢ كم وأنه تم صدور أوامر مسئلة ثلاث عقود هم

١- استلام من المسافة 692+783 إلى 693+783 بطول ٠.٢٥٠ كم (٢٠٢١/٢٠٢٢) بتاريخ ٢٠٢٢/٧/١٢

٢- حدة من المسافة 693+283 إلى 693+533 بطول ٠.٢٥٠ كم (٢٠٢١/٢٠٢٢) بتاريخ ٢٠٢٢/١٠/١٢

٣- حدة من المسافة 693+533 إلى 693+783 بطول ٠.٢٥٠ كم (٢٠٢٢/٢٠٢٣) بتاريخ ٢٠٢٢/١١/١٢

وبحيث أن هذه العقود ضمن المسافة من 691+783 إلى 693+783 الشركة فتمت بالاتصال في المسافة من 671+780 إلى 672+780 ولم
يصدر لها أمر مسئلة

لذا أرجو من سيادتكم الملاحظة على صرف الاتصال في المسافة 671+780 إلى 672+780 على أحد العقود الصادرة لتأخيراتها في
نفس القطاع شخصين ولها نفس الاستكشاف وذلك طبقا للتعرفة المعروضة على السيد اللواء رئيس الهيئة من السيد المهندس
مدير عام تنفيذ الطرق والتي تم الملاحظة عليها (مرفق)

الرجاء من سيادتكم نحو التكرم بالإحقة والتنبيه باللائم

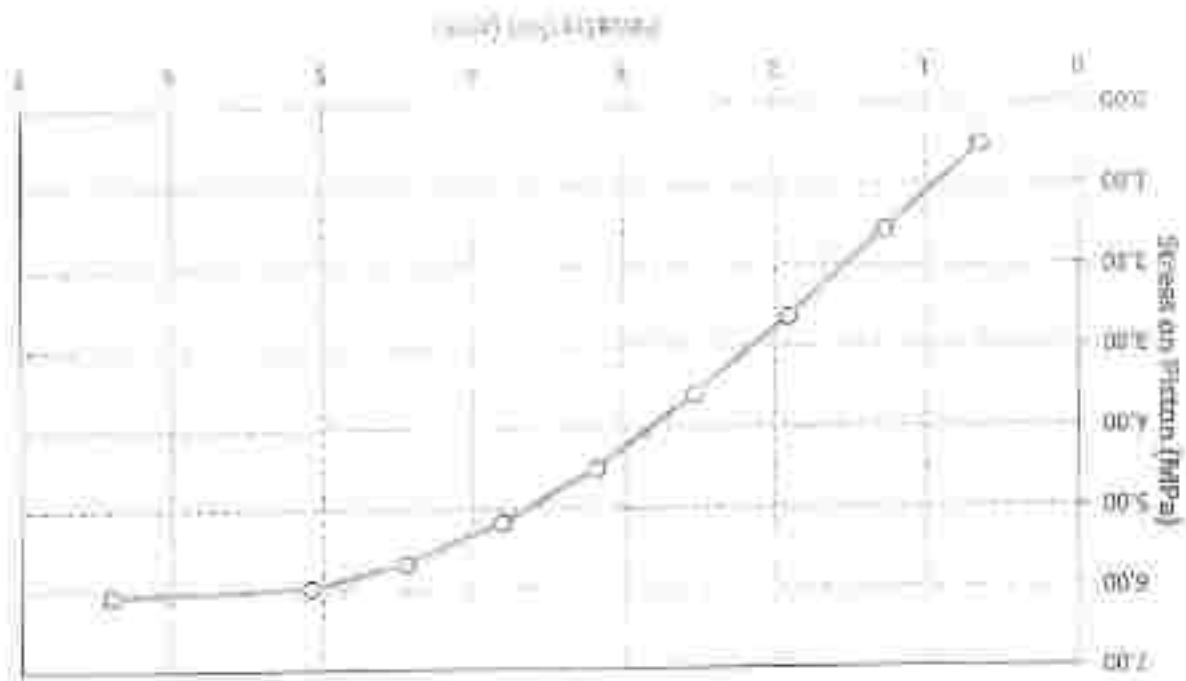
وتفضلوا بقبول فائق التحية والتقدير

رئيس مجلس إدارة شركة عبد الرحمن



مجلس إدارة شركة عبد الرحمن
مستشارين في الزراعة والصيد
مصلحة الزراعة والصيد
١٥٥٣٢ - قنا

Signature: _____



ASTM D-1883
Load-Displacement Curve of CR8 Test

Project: _____
 Location: _____
 Date of Test: _____
 Test Number: _____
 Test Results: _____
 Test Date: _____
 Test Time: _____
 Test Location: _____

Signature: _____



COMPACTOR
Model: 672+680
15000 (2000) (2000)



- At optimum moisture content = 5.6 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+680	1601	2.24	5.8	2.12	95.9%	Comply

ASTM D-1556

Compaction test by using Sand – Cone Test Method

Company Name : Gauri & Sons
Project : Electric Express Train – HSR From Guis To Arunachal
Testing Date : 13/09/2023
Soil type : Middle Embankment - 15000
Location : ST From 672+640 to 672+680
Level : ~ 4.5 M
Report No. : 17



Company Name : **دعجل ايج ايج**
Project : **Electric Express Train – HSR From Qous To Arman**
Testing Date : **19/09/2023**
Soil type : **Middle Embankment**
Location : **ST From 671+900 to 671+980**
Level : **- 5 M**
Report No. : **19**

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	671-930	1821	2.27	6.4	2.13	96.6%	Comply
2	671-960	1717	2.30	5.8	2.17	98.2%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature/ **ET**
Date: 19/09/2023
Time: 10:00 AM
Page: 01/01



Signature

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672-130	1924	2.28	6.8	2.13	96.5%	Comply
2	672-160	1683	2.28	6.4	2.15	97.1%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Company Name : **CEL**
 Project : **Electric Express Train - HSR From Qom To Arman**
 Testing Date : **20/09/2023**
 Soil type : **Middle Embankment**
 Location : **ST From 672+080 to 672+180**
 Level : **- 1.5 M**
 Report No. : **20**



Signature: ...

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

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

Materials Test

This sample is representative for 5,000 MP

Attached here with the delivered on 14 / 8 / 2023

Dear Gentlemen,

Company Name : ...
 Project : Electric Repairing ...
 Location : ST-672+180 E=32.7745621 N=35.6596723
 Type of sample : Soil Embankment
 Delivery Date : 14/8/2023
 Reporting Date : 19/8/2023
 Reporting No. : 01-4



Page 1 of 1

Signature: _____

Slit Size (mm)	Slit Size (mm)	Passing %
0.075	40	28.6
0.150	100	46.9
0.250	60	60.0
0.425	40	69.8
0.750	20	71.1
1.180	15	74.1
2.000	75	92.5
2.500	60	96.1
5.000	30	97.5
7.500	20	

RESULT OF SIEVE ANALYSIS According to ASTM D-421

Sample Name: _____
 Location: _____
 Date: _____
 By: _____
 Checked by: _____
 Approved by: _____

Date: _____
 By: _____

Signature / Stamp

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

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

Company Name : South Arc
Project : Electric Express Train - HSR From Guwahati to Aizawl
Location : ST: 673+180 G=02.7703621 N=15.6596723
Type of sample : Soil (embankment)
Delivery Date : 14/9/2023
Reporting Date : 19/9/2023
Reporting No. : 01-4



Soil Mechanics
Lecture 10

Soil Mechanics
Lecture 10

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

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

Soil Classification
Liquid Limit (LL) = 19.7%
Plastic Limit (PL) = 19.7%
Shrinkage Index (SI) = 19.7%
Liquid Limit (LL) = 19.7%
Plastic Limit (PL) = 19.7%
Shrinkage Index (SI) = 19.7%

Soil Classification
Liquid Limit (LL) = 19.7%
Plastic Limit (PL) = 19.7%
Shrinkage Index (SI) = 19.7%

Significance of χ^2 test = 2.071

1997: 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 26

g.c. $\frac{1}{2}$ mols. di ossigeno liquido



ASTM-T-1557

[illegible]



Signature/Initials

- Notes:
1. Attached Graph shows penetration resistance versus penetration modulus. The sample was compacted to dry density of ≈ 2.31 (g/cc).
 2. $\Delta L = 3.8$ mm optimum water content.
 3. Surcharge load 4.50 kg.
 4. CBR is for middle and lower embankments according to project spec. para. no. 35.

CBR Result	150 mm (2.54 inch) penetration	
	Sp. Value	Sample results
Stress (Mpa)	0.90	3.65
CBR 100 %		52.9 %

penetration	stress on piston (Mpa)	
	mm	inch
0.64	0.025	0.51
1.27	0.050	1.63
1.91	0.075	2.72
2.54	0.100	3.65
3.18	0.125	4.57
3.81	0.150	5.25
4.45	0.175	5.77
5.08	0.200	6.04
6.35	0.250	6.35

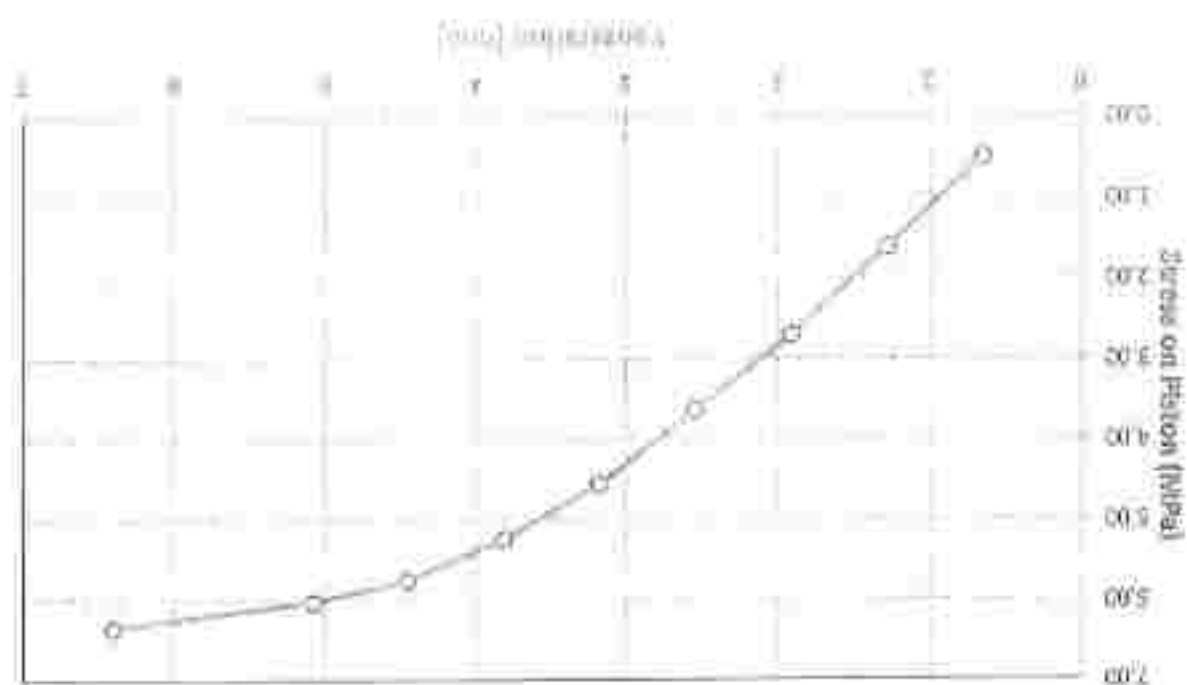
ASTM D 1585

Test Results of California Bearing Ratio (CBR) Test

Location: ST-1000000 (Sect. 1000000) Highway No. 1000000
 Type of Material: 30% Sandstone
 Laboratory No.: 1000000
 Reporting Date: 10/10/2000
 Reporting No.: 1000000

Signature/Initials

Signature / _____



Load Penetration Curve of (TRC Test)
ASTM D-1883

Project: _____
 Location: _____
 Date: _____
 Prepared by: _____
 Checked by: _____
 Approved by: _____

Signature: _____
Date: _____

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+030	1568	2.30	6.4	2.16	97.7%	Comply
2	672+056	1526	2.30	6	2.17	98.0%	Comply

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

Company Name : شركة الجندل
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 23/09/2023
Soil type : Middle Embankment
Location : ST From 672+020 TO 672+060
Level : - 3.5 M
Report No. : 21

[Signature]

Signature /

• At optimum moisture content = 5.8 %

• Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+770	1396	2.26	6.8	2.12	95.8%	Comply

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

Company Name : *[Signature]*
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 23/09/2023
Soil type : Middle Embankment
Location : ST From 672+760 To 672+780
Level : - 4.5 M
Report No. : 21-2

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Ararat
Testing Date : 24/09/2023
Soil type : Middle Embankment
Location : ST From 672+640 TO 672+700
Level : -4 M
Report No. : 22

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	672+670	1527	2.30	6.4	2.16	97.8%	Comply
2	672+695	1494	2.31	5.8	2.18	98.7%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature : 

Signature / _____

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture % Content	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+730	1624	2.30	6.4	2.16	97.9%	Comply
2	671+760	1771	2.24	6.4	2.11	95.3%	Comply

ASTM D-1558

Compaction test by using Sand - Cone Test Method

Company Name : _____
Project : Electric Express Train - HSR From Qaz To Arman
Testing Date : 26/09/2023
Soil type : Middle Embankment
Location : ST From 672+700 To 672+780
Level : - 4 M
Report No. : 24



Signature /

- At optimum moisture content = 5.8 %
- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gmv/cm ³	Moisture Content %	Dry Density (gmv/cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	2038	2.29	5.4	2.15	97.3%	Comply
2	672+700	2018	2.24	5.8	2.12	95.9%	Comply
3	672+740	1714	2.26	5.5	2.14	96.7%	Comply
4	672+760	1759	2.22	5.6	2.11	95.3%	Comply

ASTM D-1556

Compaction test by using Sand – Cone Test Method

Report No. : 27
Level : ~ 3.5 M
Location : ST From 672+640 To 672+780
Soil type : Middle Embankment
Testing Date : 2/10/2023
Project : Electric Express Train – HSR From Qom To Arvand
Company Name : شركة الجرافيك

Signature /
219-881-807
219-881-807
219-881-807

- * At optimum moisture content = 5.8 %
- * Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density g/m ³	Moisture Content %	Dry Density (g/m ³)	Degree of Compaction (%)	Acceptance
1	672+060	1679	2.22	5.8	2.10	95.1%	Comply
2	672+100	1508	2.33	6.4	2.19	99.3%	Comply
3	672+135	1370	2.31	5.5	2.19	99.2%	Comply
4	672+175	1403	2.33	5.6	2.20	99.7%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Report No. : 25
Level : - 3 M
Location : ST From 672+020 TO 672+180
Soil type : Middle Embankment
Testing Date : 27/09/2023
Project : Electric Express Train - HSR From Gons To Armani
Company Name : Gajil & Co

Signature /
At optimum moisture content = 5.8 %
Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+925	1679	2.28	6.4	2.14	96.8%	Comply
2	671+941	1499	2.28	6	2.15	97.1%	Comply
3	671+975	1506	2.34	6.4	2.20	99.4%	Comply

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

Report No. : 26
Level : - 4.5M
Location : ST From 671+900 To 671+980
Soil type : Middle Embankment
Testing Date : 30/09/2023
Project : Electric Express Train - HSR From Qous To Ararat
Company Name : شركة الجرافيك

- At optimum moisture content = 5.8 %

- Max. dry density = 2.21 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1862	2.24	5.8	2.12	95.8%	Comply
2	671+865	1841	2.28	5.8	2.16	97.6%	Comply

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

Company Name :	قوة مصر
Project :	Electric Express Train - HSR From Qunt To Armut
Testing Date :	25/09/2023
Soil type :	Middle Embankment
Location :	SI From 671+780 TO 671+880
Level :	- 4.5 M
Report No. :	23



Page 1 of 1
 Date: 2/2/2023

Signature: *[Signature]*

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

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Spec.
5. Proctor Test according to ASTM D-1533
6. CBR according to ASTM D-1883

Materials test

The sample is representative for 5,000 m³

Attached here with the delivered on 21/2/2023

Dear Gentleman,

Company Name : *[Signature]*
 Project : Electric Express Line - HSR From Elmad TO Aynoud
 Location : ST-672-180 #31.7745621 (N=15.6596723
 Type of sample : Soil (compaction)
 Delivery Date : 21/2/2023
 Reporting Date : 26/2/2023
 Reporting No. : 01-5



Page No. _____

Signature / Name of Candidate _____

Slit Size (mm)	Slit Size (mm)	Fracture %
0.425	40	28.1
0.60	10	41.5
0.75	2	53.6
0.850	0.75	60.0
1.180	0.6	70.6
1.9	0.425	78.2
2.5	0.3	84.1
3.75	0.25	90.2
50	0	96.8
	(mm)	

Slit Size (mm) / Slit Size (mm) / Slit Size (mm)

Slit Size (mm) / Slit Size (mm) / Slit Size (mm)
 Slit Size (mm) / Slit Size (mm) / Slit Size (mm)
 Slit Size (mm) / Slit Size (mm) / Slit Size (mm)

Slit Size (mm) / Slit Size (mm) / Slit Size (mm)
 Slit Size (mm) / Slit Size (mm) / Slit Size (mm)

Slit Size (mm) / Slit Size (mm) / Slit Size (mm)
 Slit Size (mm) / Slit Size (mm) / Slit Size (mm)



Signature/Stamp

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	8.4

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

Company Name : C&L App. Pvt. Ltd.
Project : District Regional Train - HSR From Quth To Ahmednagar
Location : ST. 673+180 R=32.7745621 W=23.6594723
Type of sample : Soil (Ambient)
Delivery Date : 21/9/2023
Reporting Date : 26/9/2023
Reporting No. : 91-5





Page 1 of 1

Page 1 of 1

Test	Results (%)
Liquid Limit	0
Plastic Limit	0
Shrinkage Limit	0

Results of liquid limit and plasticity index
of soils according to ASTM D-1586

Test Results
Liquid Limit (LL) (%)
Plastic Limit (PL) (%)
Shrinkage Limit (SL) (%)
Liquid Limit (LL) (%)
Plastic Limit (PL) (%)
Shrinkage Limit (SL) (%)
Liquid Limit (LL) (%)
Plastic Limit (PL) (%)
Shrinkage Limit (SL) (%)
Liquid Limit (LL) (%)
Plastic Limit (PL) (%)
Shrinkage Limit (SL) (%)

Page 1 of 1



Page 1 of 1

Signature of the student

The test results are to be entered in the following table

TEST	Results (%)	Limits according to the project			
		Group Classification	3.00 mm (No. 10)	0.425 mm (No. 60)	0.075 mm (No. 200)
		(A-C)	61.5	28.6	8.4
		(A-C)	Water 50 %	Water 30 %	Water 10 %
		(A-C)	Max 50 %	Max 30 %	Max 10 %
		(A-C)	Min 15 %	Min 15 %	Min 15 %
		(A-C)	Max 10 %	Max 10 %	Max 10 %

Soil Classification

Soil Classification:
 According to the
 Unified Soil Classification
 System, the soil is
 classified as
 Clayey Sand (SC)
 with a liquid limit
 of 28.6% and a plastic
 limit of 15.7%.

Soil Classification:
 According to the
 Unified Soil Classification
 System, the soil is
 classified as
 Clayey Sand (SC)
 with a liquid limit
 of 28.6% and a plastic
 limit of 15.7%.

Experiment /

1. To determine the effect of temperature on the rate of reaction between potassium dichromate and potassium iodide.
2. To determine the effect of concentration on the rate of reaction between potassium dichromate and potassium iodide.

WATER CONDUCTIVITY



RESULTS

The rate of reaction between potassium dichromate and potassium iodide was found to be directly proportional to the temperature and concentration of the reactants.

1. To determine the effect of temperature on the rate of reaction between potassium dichromate and potassium iodide.	2. To determine the effect of concentration on the rate of reaction between potassium dichromate and potassium iodide.
--	--

The rate of reaction was found to be directly proportional to the temperature and concentration of the reactants.

The rate of reaction was found to be directly proportional to the temperature and concentration of the reactants.



Signature: _____

1. The sample was compacted to dry density of 92.31 (90% comp)
 2. The sample was subjected to various penetration tests
 3. The sample was subjected to various penetration tests
 4. The sample was subjected to various penetration tests

(1000)

CBR (%)	Strain (%)	Penetration	
		DL Value	DL Value
0.5	0.05	0.05	0.05
1.0	0.10	0.10	0.10
1.5	0.15	0.15	0.15
2.0	0.20	0.20	0.20
2.5	0.25	0.25	0.25
3.0	0.30	0.30	0.30
3.5	0.35	0.35	0.35
4.0	0.40	0.40	0.40
4.5	0.45	0.45	0.45
5.0	0.50	0.50	0.50
5.5	0.55	0.55	0.55
6.0	0.60	0.60	0.60
6.5	0.65	0.65	0.65
7.0	0.70	0.70	0.70
7.5	0.75	0.75	0.75
8.0	0.80	0.80	0.80
8.5	0.85	0.85	0.85
9.0	0.90	0.90	0.90
9.5	0.95	0.95	0.95
10.0	1.00	1.00	1.00

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

DATE: 10/10/2023

TESTED BY: _____

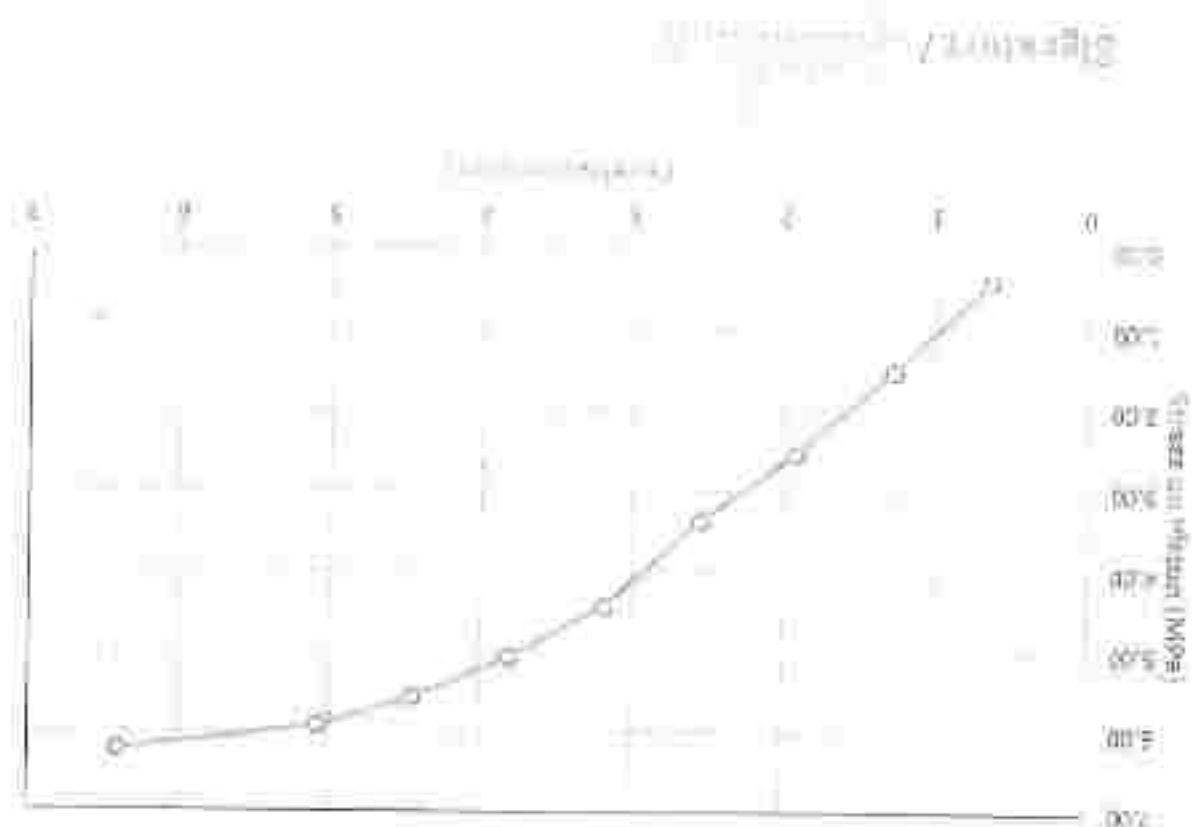


Figure 1: The relationship between the number of people and the number of people.

The graph shows the relationship between the number of people and the number of people. The x-axis represents the number of people in millions, and the y-axis represents the number of people in millions. The curve starts at the origin (0,0) and increases at an increasing rate, indicating a positive correlation between the two variables.

The graph shows the relationship between the number of people and the number of people. The x-axis represents the number of people in millions, and the y-axis represents the number of people in millions. The curve starts at the origin (0,0) and increases at an increasing rate, indicating a positive correlation between the two variables.

Company Name : Enxyl de S.A

Project : Electric Express Train - HSR From Quez To Armon

Testing Date : 31/03/2023

Soil type : Middle Embankment

Location : ST From 671+780 To 672+020

Level : - 4 M

Report No. : 28

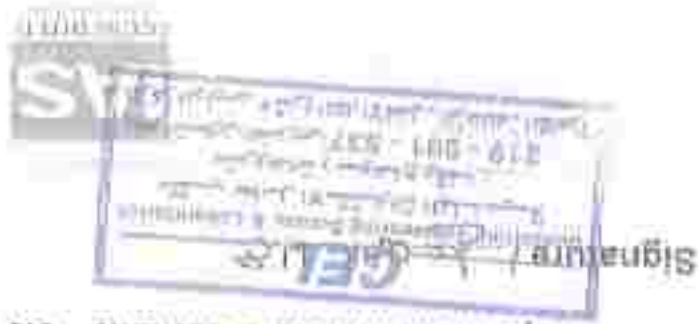
Compaction test by using Sand - Cone Test Method
ASTM D - 1556

Test #	Station	Test Hole Volume cm ³	Bulk Density g/cm ³	Moisture % Content	Dry Density (g/cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1510	2.28	5.5	2.16	98.3%	Comply
2	671+870	1568	2.22	5.8	2.10	95.2%	Comply
3	671+920	1622	2.23	5.5	2.12	96.2%	Comply
4	671+960	1329	2.30	5.5	2.18	99.1%	Comply
5	672+010	1783	2.26	5.3	2.14	97.4%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 g/cm³

• At optimum moisture content = 5.8 %



Company Name : **CEL**
 Project : **Electric Express Train - HSR From Gouda To Arnhem**
 Location : **ST: 673+180 E=32.7745621 N= 55.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **27/9/2023**
 Reporting Date : **1/10/2023**
 Reporting No. : **01-6**

Dear Gentlemen,
 Attached here with the delivered on 27 / 9 / 2023

This sample is representative for 5,000 M³

Materials test

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

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

Signature : 



Signature : *[Signature]*
Date : 1/10/2023

Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	24.2
2.00	10	39.3
4.75	4	52.4
9.50	3/8	60.5
12.50	1/2	74.3
19	3/4	78.4
25	1	84.3
37.5	1.5	90.7
50	2	98.1

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Company Name : *[Signature]*
 Project : Electric Express Train - HSR From Qoos To Arman
 Location : ST/ 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 27/9/2023
 Reporting Date : 1/10/2023
 Reporting No. : 01-6

Signature / *[Signature]*

Test	Percentage of material finer than Sieve Size 75 μ m (No.200)
Results (%)	8.6

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

Company Name : *[Arabic Name]*
Project : Electric Express Train - HSR From Qova To Arman
Location : ST: 672+180 E=31.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 27/9/2023
Reporting Date : 1/10/2023
Reporting No. : 01-6

Signature/.....

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

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

Company Name : **CEL**
 Project : **Electric Express Train - HSR From Qom To Arvand**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **27/9/2023**
 Reporting Date : **1/10/2023**
 Reporting No. : **01-6**

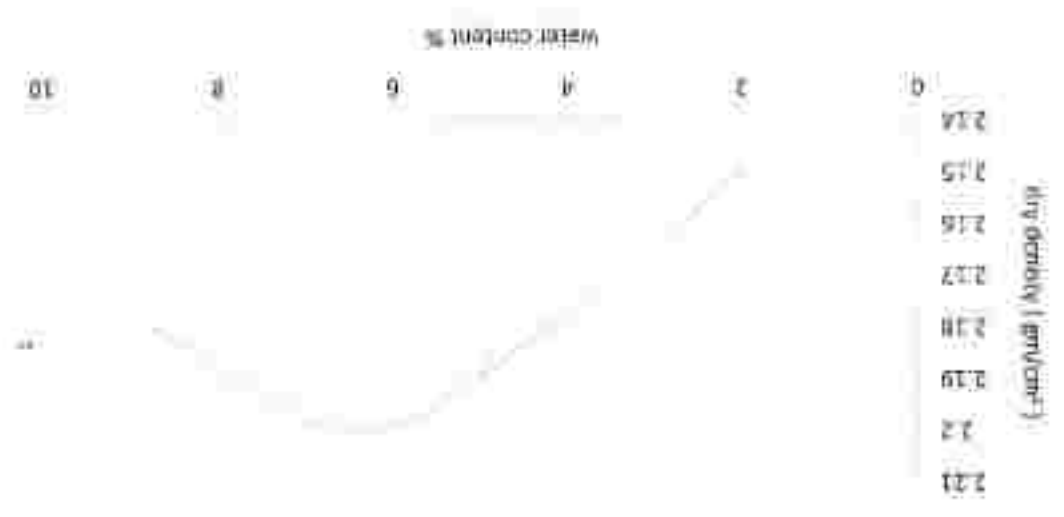
The test results are { E Comply - $\equiv$ Not Comply } with specifications limits

Soil Classification

Company Name :	U.S. & S.A.
Project :	Electric Express Train - HSR from (Joué To Argent)
Location :	ST: 672+180 E=32.7745621 N=25.6596723
Type of sample :	Soil Remunishment
Delivery Date :	27/9/2023
Reporting Date :	1/10/2023
Reporting No. :	01-6

Company Name : **CEL**
 Project : **Electric Express Train - HSR From Qous To Arinam**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **27/9/2023**
 Reporting Date : **1/10/2023**
 Reporting No. : **01-6**

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



- Max dry density (gm/cm³) : **2.30**
- Optimum moisture content % : **5.8**

Signature / **[Signature]**



Signature / *[Signature]*

- Notes:
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compared to dry density of ≈ 2.20 (gm/cm³)
 - 3- Surcharge load 4.50 kg.
 - 4- CBR ≈ 50 for reliable and lower embankments according project spec page No 35.

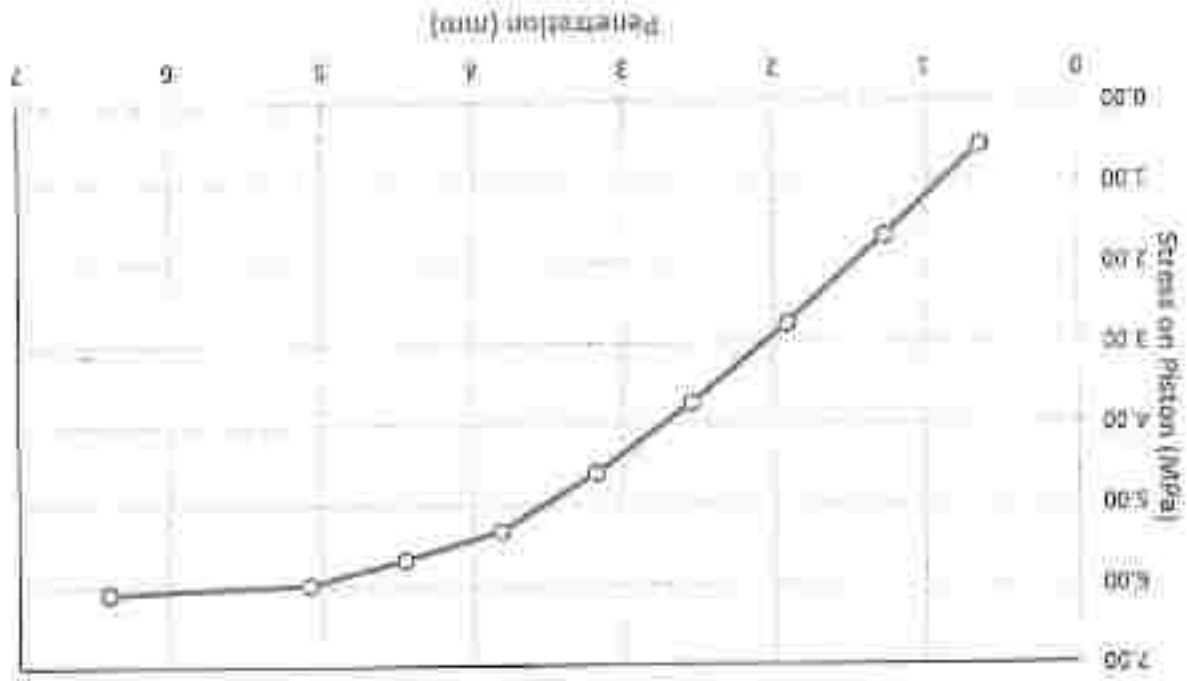
CBR Result	at 0.1 inch (2.54 mm) penetration	
	St. Value	Shrinkage results
CBR 100 %	6.90	54.4 %
penetration	mm	6.35
	inch	5.08
		4.45
		3.81
		3.18
		2.54
		1.91
		1.27
		0.64
		0.56
	stress on piston (Mpa)	6.09

ASTM D 1883

Test Results of California Bearing Ratio on Base Materials

Company Name : *[Signature]*
 Project : Electric Express Train - HSR from Qom To Arman
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 27/9/2023
 Reporting Date : 1/10/2023
 Reporting No. : 01-6

Signature / *[Signature]*



ASTM D-1883
Load Penetration Curve of CBR Test

Company Name : *[Arabic Name]*
 Project : Electric Express Train - HSH From Qous To Arman
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 27/9/2023
 Reporting Date : 1/10/2023
 Reporting No. : 01-6

Signature /
 At optimum moisture content = 5.8 %

• Max. dry density = 2.20 gm/cm³
 Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1779	2.29	6.4	2.15	97.7%	Comply
2	672+690	1799	2.31	6	2.18	99.0%	Comply
3	672+730	1814	2.28	6.4	2.14	97.4%	Comply
4	672+760	1923	2.21	5.8	2.09	95.0%	Comply

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

Report No. : 23
 Level : - 3M
 Location : ST From 672+640 To 672+780
 Soil type : Middle Embankment
 Testing Date : 9/10/2023
 Project : Electric Express Train - HSR From Ques To Armand
 Company Name : شركة الجبل



- At optimum moisture content = 5.8 %
- Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+150	1483	2.23	6	2.11	95.7%	Comply
2	672+175	1532	2.25	5.8	2.13	96.8%	Comply

ASTM D- 1556

Compaction test by using Sand – Cone Test Method

Report No. : 25
Level : 2.5 M
Location : ST From 672+120 To 672+180
Soil type : Middle Embankment
Testing Date : 8/10/2023
Project : Electric Express Train – HSR From Qous To Arman
Company Name : شركة الجيوتقنية



Signature / *[Signature]*

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

1. Sieve analysis according to ASTM D-422.
2. Material finer than sieve No. 200 according to ASTM D-1140.
3. Liquid limit 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

Materials Test

This sample is representative for 5,000 M³

Attached here with the delivered on 30 / 9 / 2023

Dear Gentleman,

Company Name : *[Arabic Name]*
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

Company Name : شركة الجسر
Project : Electric Express Train - BSR From Qous To Arman
Location : ST: 672÷180 E=52.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.2
37.5	1.5	91.2
25	1	85.2
19	3/8	78.2
12.50	1/2	71.6
9.50	3/8	64.1
4.75	4	57.0
2.00	10	42.3
0.425	40	26.8

Signature /
P.E. 112



Signature / *[Signature]*

Percentage of material finer than Sieve Size 75 μ m (No.200)	8.8
Test	Results (%)

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

Company Name : *[Arabic Name]*
 Project : Electric Express Train - HSR From Qous To Armani
 Location : ST: 672+180 E=32.7745621 N=25.6596773
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7



Signature / *[Handwritten Signature]*

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

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

Company Name : *[Handwritten Name]*
 Project : Electric Express Train – HSR From Qous To Arinab
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

The test results are (13 Comply, 12 Not Comply) with specifications limits.

TEST	Results (%)	Limits according Projects Specs			
		(A-1-a)	(A-1-b)	(A-2-4)	
* Group Classification					
2.00 mm (No.10)	42.3	Max 50 %	—	—	
0.425 mm (No. 40)	26.8	Max 30 %	Max 50 %	—	
0.075 mm (No. 200)	8.8	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit		—	—	—	
Plasticity Index	0	Max 6 %	Max 6 %	Max 10 %	

Soil Classification

Company Name : 中国铁路集团
Project : Electric Express Train - HSR From Qiong To Aizhuang
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

Company Name : شركة الجوال
 Project : Electric Express Train - HSR From Gowa To Armanah
 Location : ST: 672+180 E=31.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 30/9/2023
 Reporting Date : 3/10/2023
 Reporting No. : 01-7

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



- Max dry density (g/cm³) : 2.20
- Optimum moisture content % : 5.8

Signature / 



Company Name : شركة الجليل
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 30/9/2023
Reporting Date : 3/10/2023
Reporting No. : 01-7

Test Results of California Bearing Ratio on Base Materials
ASTM D 1583

penetration	mm	inch	stress on piston (Mpa)	CBR Result	
				Stress (Mpa)	CBR 100 %
				SL Value	Sample results
				6.90	3.65
					52.9 %
0.64		0.025	0.51		
1.27		0.050	1.57		
1.91		0.075	2.69		
2.54		0.100	3.65		
3.18		0.125	4.54		
3.81		0.150	5.22		
4.45		0.175	5.58		
5.08		0.200	5.83		
6.35		0.250	5.98		

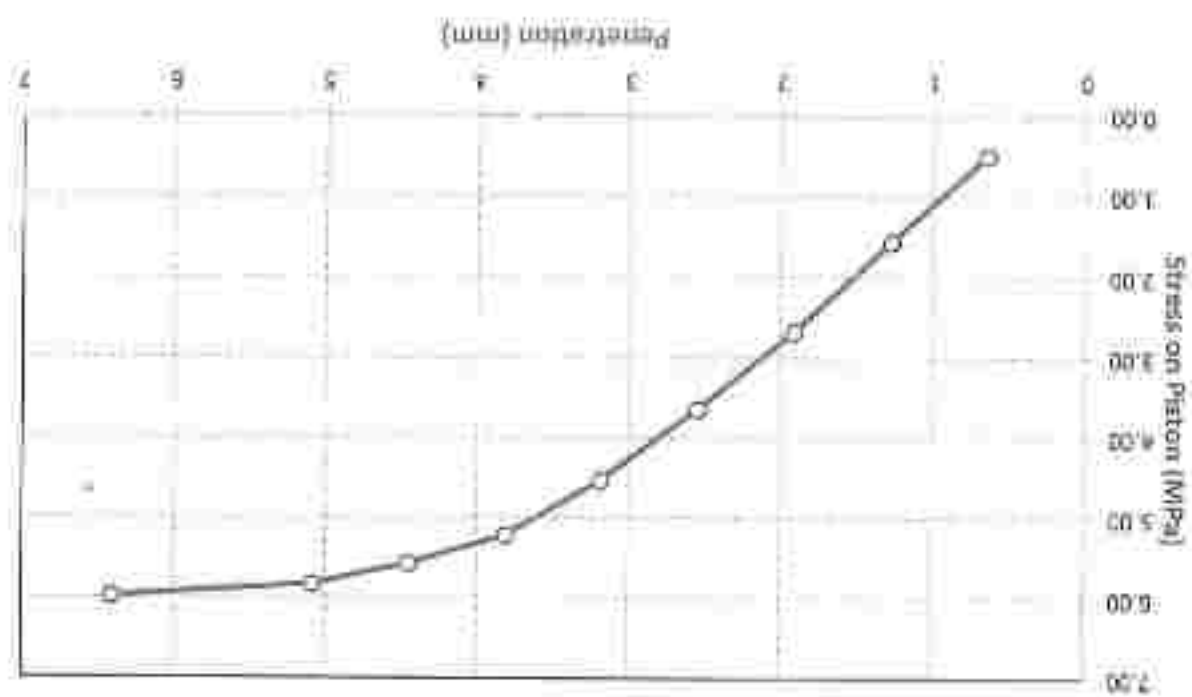
Notes:

- Attached graph shows penetration resistance versus penetration magnitude.
- The sample was corrected to dry density of $\approx 2.20 \text{ (gm/ccm}^3\text{)}$ at $\approx 5.8 \%$ optimum water content.
- Surcharge load 4.50 kg.
- CBR ≥ 10 for middle and lower embankments according project spec page No 35.

Signature / *[Signature]*

Company Name : **جی ایل سی**
 Project : **Electric Express Train - HSR From Qom To Arman**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **30/9/2023**
 Reporting Date : **3/10/2023**
 Reporting No. : **01-7**

Load Penetration Curve of CBR Test
ASTM D-1883



Signature / **محمد علی**

Signature /


- At optimum moisture content = 5.8 %
- Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+050	1411	2.24	6.4	2.11	95.8%	Comply
2	672+080	1464	2.21	5.5	2.09	95.2%	Comply
3	672+110	1470	2.22	5.8	2.10	95.6%	Comply

ASTM D-1556

Compaction test by using Sand - Cone Test Method

Report No. : 24
Level : -2.5 M
Location : ST From 672+020 To 672+120
Soil type : Middle Embankment
Testing Date : 9/10/2023
Project : Electric Express Train - BSR From Gou To Armani
Company Name : **CEL**

Company Name : **Geojit Infra**

Project : **Electric Express Train – HSR From Gurgaon To Arnam**

Testing Date : **10/10/2023**

Soil type : **Middle Embankment**

Location : **ST From 671+780 To 671+900**

Level : **-3.5 M**

Report No. : **28-2**

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture % Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+800	1423	2.28	6	2.15	97.6%	Comply
2	671+830	1852	2.23	6.4	2.10	95.5%	Comply
3	671+860	1465	2.29	6.4	2.15	97.9%	Comply
4	671+880	1654	2.27	6	2.14	97.3%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 gm/cm³

• At optimum moisture content = 5.8 %

Signature /



Company Name : **شركة الجدة**

Project : **Electric Express Train - HSR From Qous To Arnam**

Testing Date : **10/10/2023**

Soil type : **Middle Embankment**

Location : **ST From 671+900 To 672+020**

Level : **-3.5 M**

Report No. : **27**

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

Test #	Station	Test Hole Volume cm ³	Bulk Density giv cm ³	Moisture Content %	Dry Density (giv cm ³)	Degree of Compaction (%)	Acceptance
1	671+930	1421	2.25	6.4	2.12	96.2%	Comply
2	671+960	1386	2.24	6	2.11	95.9%	Comply
3	671+990	1366	2.26	6.5	2.14	97.5%	Comply
4	671+010	1292	2.32	6.4	2.18	99.2%	Comply

Degree of compaction based on proctor test dated At

• Max. dry density = 2.20 gm/cm³

• At optimum moisture content = 5.8 %

Signature / 
Engineer / 
CEL



Signature / : ٥٠٠

- * At optimum moisture content = 6.8 %
- * Max. dry density = 2.20 gm/cm³

Degree of compaction based on proctor test dated At

Test #	Station	Test Hole Volume cm ³	Bulk Density gni/cm ³	Moisture Content %	Dry Density (gmi/cm ³)	Degree of Compaction (%)	Acceptance
1	672+680	1801	2.27	5.6	2.15	97.7%	Comply
2	672+700	1784	2.26	5.5	2.14	97.4%	Comply
3	672+740	1676	2.32	6.4	2.18	99.3%	Comply

ASTM D - 1556

Compaction test by using Sand - Cone Test Method

Report No. : 33
Level : -2.5 M
Location : ST From 672+690 To 672+780
Soil type : Middle Embankment
Testing Date : 14/10/2023
Project : Electric Express Train - HSR From Qous To Ararat
Company Name : شركة الجي.ج.ج





Signature

the responsible person has taken

Note: The sample was brought by the client to our laboratory and the laboratory is

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

Materials Test

Attached here with the delivered on 22/7/2023

Dear Gentleman,

Company Name : **شركة الجبل**
Project : **Electric Express Train - HSR From Qour To Arman**
Location : **ST: 672+140 Zone: From 671+783 To 672+180**
Type of sample : **Original Earth**
Delivery Date : **25/07/2023**
Reporting Date : **29/07/2023**
Reporting No. : **01**



Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	18.02
2.00	10	29.82
4.75	4	31.72
9.50	3/8	46.02
12.50	1/2	51.32
19	3/4	61.82
25	1	66.00
37.5	1.5	73.60
50	2	82.10

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Company Name : **CEL Engineering Bureau & Laboratories**
 Project : **Electric Express Train - HSR From Qous To Arman**
 Location : **ST: 672-140 Zone: From 671+783 To 672+180**
 Type of sample : **Original Earth**
 Delivery Date : **25/07/2023**
 Reporting Date : **29/07/2023**
 Reporting No : **01**



 Signature /

Test	Percentage of material finer than Sieve Size 75 μ m (No.200)
Results (%)	6.5 %

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

Company Name : شركة الجواهر
 Project : Electric Express Train - HSR From Qous To Arment
 Location : ST: 672+140 Zone: from 671+783 To 672+180
 Type of sample : Soil Embankment (Upper Embankment 0.0 m)
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

Company Name : شركة الجوا
Project : Electric Express Train – HSR From Qons To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

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

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

Signature /

Engineer

Project	: Electric Express Train - HSR From Quas To Arment
Location	: ST: 672+140 Zone: From 671+783 To 672+180
Type of sample	: Soil Embankment (Upper Embankment 0.0 m)
Delivery Date	: 25/07/2023
Reporting Date	: 29/07/2023
Reporting No.	: 01

TEST		Results (%)	Limits according Projects Specs			
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-b)		
	2.00 mm (No.10)	29.62	Max 50 %	—	—	
	0.425 mm (No. 40)	18.02	Max 30 %	Max 50 %	—	
	0.075 mm (No. 200)	6.5	Max 15 %	Max 15 %	Max 15 %	
Liquid Limit			—	—	—	
Plasticity index		0	Max 5 %	Max 6 %	Max 10 %	

Signature: _____



Signature/

- * Optimum moisture content, % : 5.3 %
- * Max dry density (g/cm³) : 2.24



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

Company Name : **CEIL**
 Project : **Electric Express Train – HSR From Qais To Arman**
 Location : **ST: 672+140 Zone: From 671+783 To 672+180**
 Type of sample : **Original Earth**
 Delivery Date : **25/07/2023**
 Reporting Date : **29/07/2023**
 Reporting No. : **01**

Company Name : **شركة**
Project : **Electric Express Train - HSR From Qous To Ararat**
Location : **ST: 672+140 Zone: From 671+783 To 672+180**
Type of sample : **Soil Embankment (Upper Embankment 0.8 M)**
Delivery Date : **25/07/2023**
Reporting Date : **29/07/2023**
Reporting No. : **01**

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

penetration	mm	inch	stress on piston (Mpa)	CBR Result	
				St. Value	At D.1 with (2.54 mm) penetration
				6.99	59.4 %
				4.1	59.4 %
				0.250	59.4 %
				0.200	59.4 %
				0.175	59.4 %
				0.150	59.4 %
				0.125	59.4 %
				0.100	59.4 %
				0.075	59.4 %
				0.050	59.4 %
				0.025	59.4 %
				0.56	59.4 %
				1.72	59.4 %
				2.94	59.4 %
				4.10	59.4 %
				5.33	59.4 %
				6.03	59.4 %
				6.39	59.4 %
				6.57	59.4 %
				6.64	59.4 %

Notes:

- Attached graph shows penetration resistance versus penetration magnitude.
- The sample was compared to dry density of $\approx 2.25 \text{ (gm/cm}^3\text{)}$
- At $\approx 7.5\%$ optimum water content.
- Subgrade $\approx 1.5 \text{ kg}$

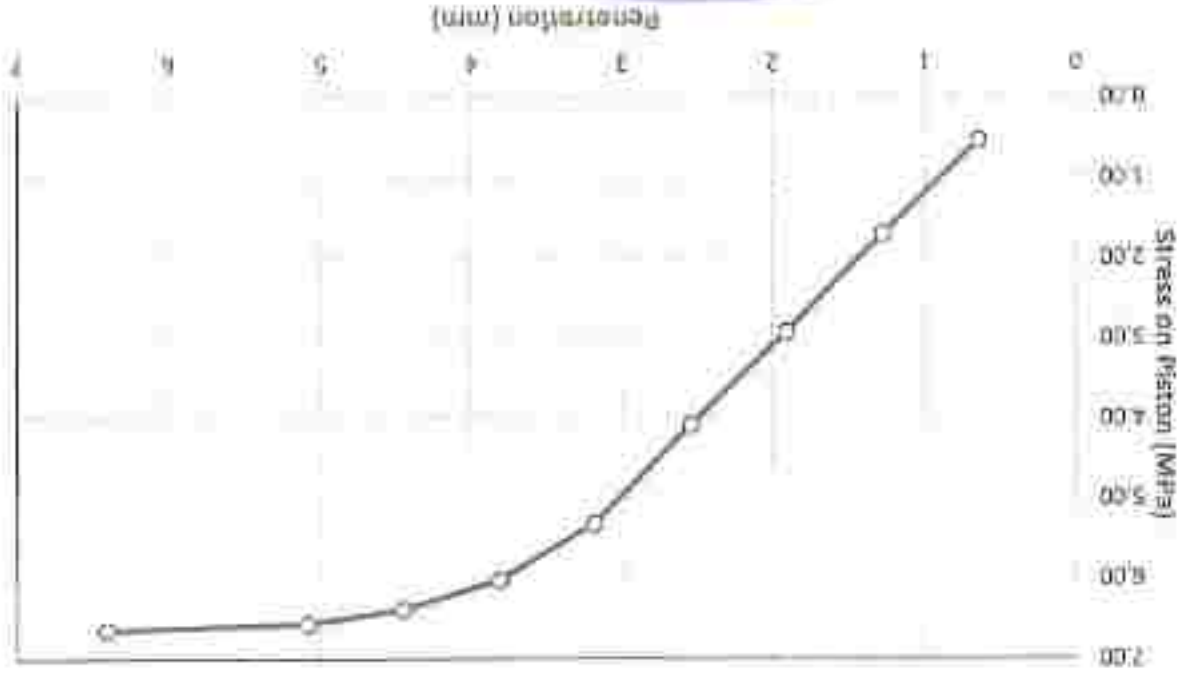
4- CBR > 10 for middle and lower embankments according project spec page No 36.

Signature /





Signature



ASTM D-1883

Load Penetration Curve of CBR Test

Company Name : شركة الجبل
 Project : Electric Express Train - MSR From Qous To Armanat
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

Company Name : شركة الجاهلي
 Project : Electric Express Train – HSR From Qous To Armanat
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01

Dear Gentleman,

Attached here with the delivered on 25 / 7 / 2023

Materials test

1. Sieve analysis according to ASTM D-422
2. Material finer than sieve No. 200 according to ASTM D-41140.
3. Liquid limits and plasticity index of soil according to ASTM D-4318.
4. Soil classification according to Project Spec.
5. Proctor Test according to ASTM D-1557
6. CBR according to ASTM D-1883

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

Signature: 




Sieve Size (mm)	Sieve Size (IN)	Passing %
0.425	40	18.02
2.00	10	29.82
4.75	4	31.72
9.50	3/8	46.02
12.50	1/2	51.32
19	3/4	61.82
25	1	66.00
37.5	1.5	73.60
50	2	82.10

RESULTS OF SIEVE ANALYSIS According to ASTM D-421.

Company Name : قوسيل ايج اس جى
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No. : 01



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

730
 Consulting Engineers & Architects
 12000 12th Avenue, Suite 100
 Denver, CO 80202
 (303) 751-1200

Company Name : قاسم اچ ایس
Project : Electric Express Train – HSR From Qoms To Arman
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

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

Test	Results (%)
Liquid Limit	11
Plastic Limit	0
Plasticity Index	0

Signature /
CEL



Signature

* Optimum moisture content % : 5.3 %

* Max dry density (gm/cm³) : 2.24

WATER CONTENT %

2.04
1.09
2.14
2.19
2.24

dry density (gm/cm³)

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

Company Name : Gajraj Ksh
Project : Electric Express Train – HSR From (Gor To Armani)
Location : ST: 672+140 Zone: From 671+783 To 672+180
Type of sample : Original Earth
Delivery Date : 25/07/2023
Reporting Date : 29/07/2023
Reporting No. : 01

Geotechnical Engineering Division & Laboratory
Department of Civil Engineering, Anna University

CEL

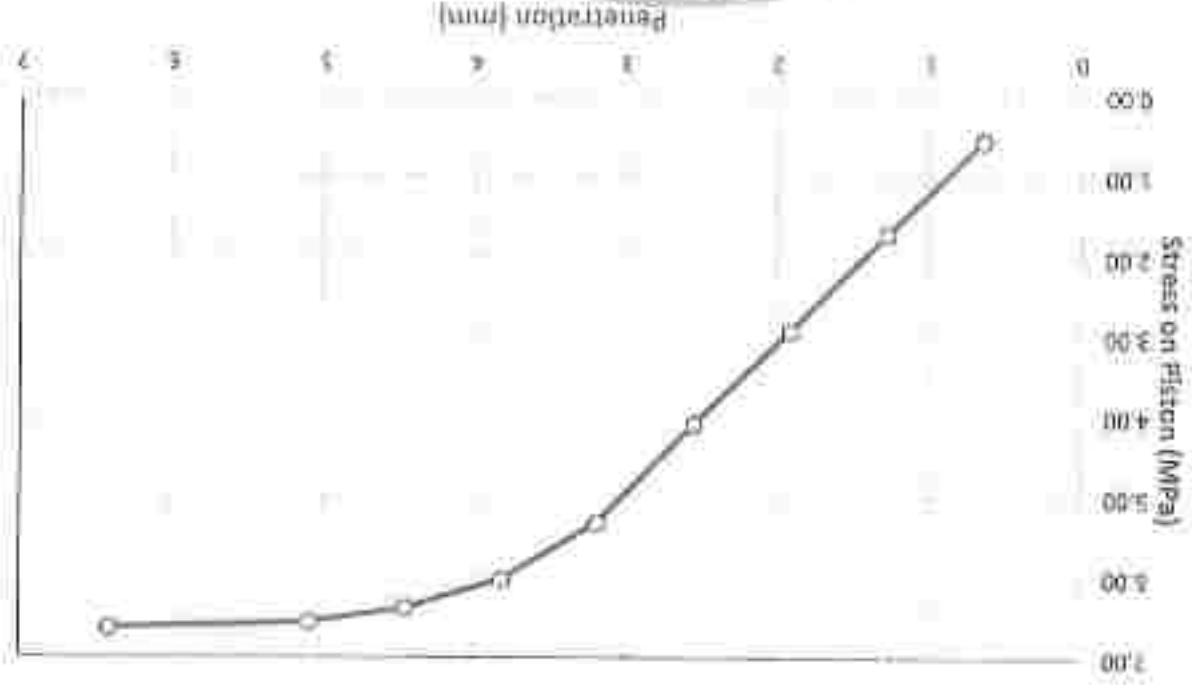
- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 1.26 \text{ (gm/cm}^3\text{)}$.
- 3- $A_1 = 5.3\%$ optimum water content.
- 3- Significant lead is by.
- 4- CBR is 10 for middle and lower embankments according project spec page No 35

	CBR Result	Stress (Mpa)	CBR 100 %
No 0.1 inch (2.54 mm) penetration	S/L Value 6.98	Sample results 4.1	59.4 %
mm	Inch	stress on piston (Mpa)	
penetration			
0.64	0.025	0.56	
1.27	0.050	1.72	
1.91	0.075	2.94	
2.54	0.100	4.10	
3.18	0.125	5.33	
3.81	0.150	6.03	
4.45	0.175	6.39	
5.08	0.200	6.57	
6.35	0.250	6.64	

Test Results of California Bearing Ratio on Base Materials

Company Name :	Gasoli & Co.
Project :	Electric Express Train - HSR From Qara To Arment
Location :	ST: 672+140 Zone: From 671+783 To 672+180
Type of sample :	Soil Embankment (Upper Embankment 0.0 M.)
Delivery Date :	25/07/2023
Reporting Date :	29/07/2023
Reporting No. :	01

Signature / *[Signature]*



ASTM D-1883
Load Penetration Curve of CBR Test

Company Name : *[Arabic Name]*
 Project : Electric Express Train - HSR From Qas To Arnam
 Location : ST: 672+140 Zone: From 671+783 To 672+180
 Type of sample : Original Earth
 Delivery Date : 25/07/2023
 Reporting Date : 29/07/2023
 Reporting No: : 01



Test No.	Station		Location	Layer (m)	First Cycle E_u (MPa)	Second Cycle E_u (MPa)	Eval E_u Ratio
	From	To					
1	672+100	672+000	672+120	-5.0	48.0	123.8	2.53

Evaluation and representation of results

Item	Description
1	Type of bedding material below the plate
2	Plate diameter (mm)
3	Date of measurement
4	Unusual observation made during test
5	Description of the soil condition below the plate after testing
6	No deformation

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

Report

- Evaluation and representation of results
- Load settlement curve
- The test report contain the following:
 - Location of test site - Orientation of loading plate
 - Measuring device used - Type of soil
 - Type of bedding material below the plate - Weathering condition
 - Time and date of measurement - Unusual observation made during test
 - Final gauge reading and corresponding normal stress - Loading-settlement curve
 - Description of the soil condition below the plate after testing.



The following table shows the results of the tests conducted on the specimens of the material under test. The results are given in the form of a table. The first column shows the test number, the second column shows the test name, the third column shows the test result, and the fourth column shows the test unit.

Test No.	Test Name	Test Result	Test Unit
1	Compression	10.0	MPa

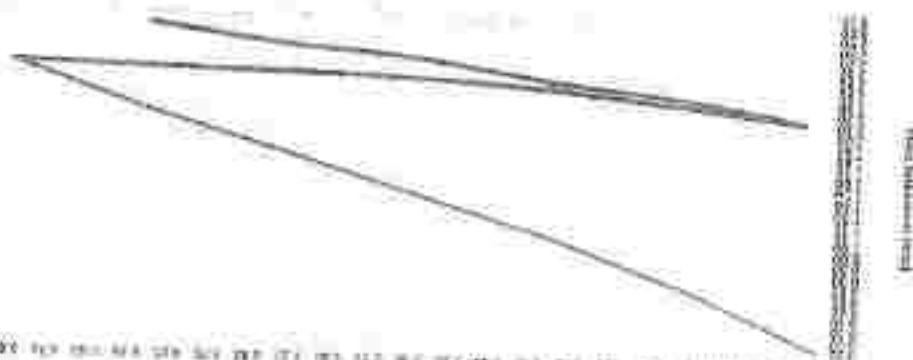
Test No.	Test Name	Test Result	Test Unit
2	Tension	10.0	MPa

Example - 1

Test No.	Test Name	Test Result	Test Unit
3	Flexure	10.0	MPa

Test No.	Test Name	Test Result	Test Unit
4	Impact	10.0	MPa

Test No.	Test Name	Test Result	Test Unit
5	Hardness	10.0	MPa



The following table shows the results of the tests conducted on the specimens of the material under test. The results are given in the form of a table. The first column shows the test number, the second column shows the test name, the third column shows the test result, and the fourth column shows the test unit.

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The following table shows the results of the tests conducted on the specimens of the material under test. The results are given in the form of a table. The first column shows the test number, the second column shows the test name, the third column shows the test result, and the fourth column shows the test unit.

Company : **CEL**
Project : **Electric Express Train - Sector (5) - Clou 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 6571+687 to 672+687**
Test Date : **02/09/2023**
Report Date : **02/09/2023**
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 measure 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 750 Bar (Errebar)
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 2 dial gauges
3. Prior to starting the test applied preloading about 30 kN/m²
4. The strain gauges and the dial gauges shall be set to zero
5. For a 300 mm loading plate, the limit values are 6.0 kg/cm²
6. The load shall be applied in six stages, in approximately equal increments, until the required minimum 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 percentage stage of the first cycle (so that the soil will not be 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



Signature

Test No	Station		Location	Level (m)	First Cycle	Second Cycle	Ratio
	From	To					
1	0/1-50/	0/2-00/	0/2-020	-4.0	155.1	151.4	0.98

Evaluation and representation of results

Item	Description
1	Type of soil : Original earth
2	Load requirement : $E_{v2} > 40 \text{ MPa}$
3	The test report content the following
4	Location of test site - Position of loading plate
5	Measuring device used - Type of soil
6	Type of bedding material below the plate - Weathering condition
7	Time and date of measurements - Unusual observation made during test
8	Crack gauge reading and corresponding normal stress - Loading-settlement curve
9	Description of the soil condition below the plate after testing
10	No deformation

Report

- 1. Evaluation and representation of results
- 2. Load Settlement curve
- 3. The test report content the following
- 4. Location of test site - Position of loading plate
- 5. Measuring device used - Type of soil
- 6. Type of bedding material below the plate - Weathering condition
- 7. Time and date of measurements - Unusual observation made during test
- 8. Crack gauge reading and corresponding normal stress - Loading-settlement curve
- 9. Description of the soil condition below the plate after testing



The following table shows the results of the tests conducted on the material. The values are given in the units specified in the table. The values are given in the units specified in the table.

Test No.	Test Name	Result
1	Compressive Strength	10.5 MPa
2	Tensile Strength	5.2 MPa

Test No.	Test Name	Result
3	Flexural Strength	12.5 MPa
4	Impact Strength	15.0 MPa

Test No.	Test Name	Result
5	Hardness	10.5 MPa
6	Wear Resistance	5.2 MPa

Test No.	Test Name	Result
7	Corrosion Resistance	10.5 MPa
8	Thermal Stability	5.2 MPa

Test No.	Test Name	Result
9	Acoustic Emission	10.5 MPa
10	Dynamic Mechanical Analysis	5.2 MPa

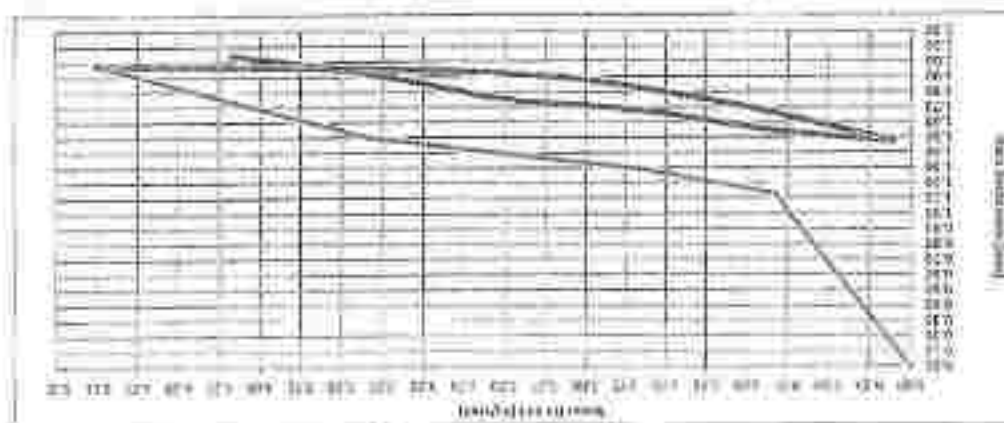


Figure 1: Stress-Strain Curve for the Material

The following table shows the results of the tests conducted on the material. The values are given in the units specified in the table. The values are given in the units specified in the table.

The following table shows the results of the tests conducted on the material. The values are given in the units specified in the table. The values are given in the units specified in the table.

Company Name: **CEL**
 Project: **CEL**
 Report Date: **02/08/2020**
 Report Date: **02/08/2020**
 Location: **Station (67+820)**
 Test No: **02**

Non-Reactive Strain Limit (Ratio of Soil)
GIN 18136

Loading	Stress Kg/cm ²	Dia 1 mm	Settlement mm	Dia 2 mm	Settlement mm	Average
0	0.00	70.00	0.00	20.00	0.00	0.00
1	0.63	70.00	1.01	19.00	0.03	0.53
2	1.00	70.00	1.20	18.72	0.23	0.73
3	2.50	70.00	1.31	18.61	0.30	0.95
4	3.33	70.00	1.35	18.50	0.60	1.20
5	4.17	70.00	1.63	18.00	0.96	1.42
6	5.00	70.00	2.02	17.90	1.04	1.53

Loading	Stress Kg/cm ²	Dia 1 mm	Settlement mm	Dia 2 mm	Settlement mm	Average
1	2.50	70.00	1.94	18.15	0.90	1.42
2	3.33	70.00	1.80	18.38	0.70	1.25
3	5.00	70.00	1.41	18.68	0.31	0.90

Loading	Stress Kg/cm ²	Dia 1 mm	Settlement mm	Dia 2 mm	Settlement mm	Average
0	0.00	70.00	1.00	18.50	0.00	1.00
1	1.00	70.00	1.00	18.01	0.00	1.00
2	2.00	70.00	2.00	18.21	0.78	1.42
3	3.33	70.00	2.27	18.30	0.90	1.58
4	4.17	70.00	2.57	18.00	1.18	1.92



Company : **CEL BUREAU ENGINEERING BUREAU & LABORATORIES**
Project : **Electric Express Train - Sector (5) - Gate to Arrimal**
Subject : **Determining the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements**
Test Location : **Station (07+987 to 672+007)**
Test Date : **02/06/2023**
Report Date : **03/06/2023**
Type of soil : **Original earth**
Report No. : **1**

Dear Gentlemen,

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

Apparatus

1. Loading plates consists of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 20 mm
3. Dial gauges with accuracy 0.01 mm to measure 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. Indicator measuring device with scale capacity 200 Bar (Enstabac)
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 2 dial gauges
3. Prior to starting the test applied preloading about 20 seconds
4. The strain gauge and the dial gauge shall be set to zero
5. For a 300 mm loading plate, the final values are 5-0 (kg/cm²)
6. The load shall be applied in six stages, to approximately equal increments, until the required maximum vertical stress is reached
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be retained 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 settlement value 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





Signature

Test No.	Station		Location	Level (m)	Ev ₁ (MPa)	Ev ₂ (MPa)	Ev ₁ /Ev ₂ Ratio
	From	To					
1	671+987	672+087	672+020	4.11	165.1	161.4	0.98

Evaluation and representation of results

Item	Descriptions
- Type of bedding material below the plate	Natural soil
- Plate Diameter (mm)	300
- Date of measurement	02/06/2023
- Unusual observation made during test	NO
- Description of the soil conditions below the plate after testing	No deformation

- Type of soil : Original earth
- Job requirement : Ev₂ > 40 MPa

Report

- Evaluation and representation of results
- Load Settlement curve
- The test report content the following:
 - Location of test site - (Reference of loading point)
 - Measuring device used - Type of soil
 - Type of bedding material below the plate - Weathering condition
 - Time and date of measurement - 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

Company Name: **CEL**
Project: **CEL**
Test Date: **12/01/2022**
Report Date: **12/01/2022**
Location: **Iran (Tehran)**
Test No.: **112**

Non-repulsive Static Load Test of Soil
CIN 18134

Loading Stage (1)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	0.63	0.63	1.01	1.01	1.01	1.01	0.01
2	1.05	1.05	1.20	1.20	1.20	1.20	0.15
3	2.50	2.50	1.01	1.01	1.01	1.01	0.01
4	3.33	3.33	1.05	1.05	1.05	1.05	0.01
5	4.17	4.17	1.05	1.05	1.05	1.05	0.01
6	5.00	5.00	1.08	1.08	1.08	1.08	0.01

Loading Stage (2)

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
1	2.50	2.50	1.00	1.00	1.00	1.00	0.01
2	1.25	1.25	1.00	1.00	1.00	1.00	0.01
3	0.100	0.100	1.01	1.01	1.01	1.01	0.01

Loading	Stress	Kg/cm ²	Dial 1		Dial 2		Average
			Settlement	mm	Settlement	mm	
0	0.00	0.00	1.00	1.00	1.00	1.00	0.00
1	1.00	1.00	1.00	1.00	1.00	1.00	0.00
2	2.50	2.50	1.00	1.00	1.00	1.00	0.00
3	3.33	3.33	1.00	1.00	1.00	1.00	0.00
4	4.17	4.17	1.00	1.00	1.00	1.00	0.00



Company : شركة الهندسة والبناء

Project : Elastic Expired Table - Sector (6) - Qom to Arvand.
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specification DIN 18134/1212-04 and project requirements
Test Location : Shahr (672+00) to (673+700)
Test Date : 09/09/2023
Report Date : 12/06/2023
Type of soil : Gravelly sand
Report No. : 1-2

Test Certificate

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

Accuracy

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. Brass struts/rods with magnetic supports to fixed the dial gauges.
5. Hydraulic jack with pump to transfer reaction loads to the loading plates.
6. Dial indicator measuring device with scale capacity 700 Bar (Eierbach).
7. Reaction loading system by roller compactor with weight approximately 15 ton.
8. Calibration certificates are attached.

Test Procedures

1. Clear the ground on test area to the required level with rediscussed 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 gauges and the dial gauges should be set to zero.
5. For a 300 mm loading plate, the limit values are 0.5 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 increased 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, however, the load is to be increased only to the percentage stage of the first cycle (in case the full load is not reached).
10. At each stage the load shall be maintained until the settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads.



Neutramative Static Pile Load Test of Soils
DM 18134

Company Name : **CEL**
Project : **Neutramative Static Pile Load Test of Soils**
Test Date : **09/06/2023**
Report Date : **12/06/2023**
Location : **Station (873+700)**
Test No. : **102**

Loading Stage (1)	Load (kg)	Stress (kg/cm ²)	Dial 1		Dial 2		Average
			mm	Settlement (mm)	mm	Settlement (mm)	
0	0.00	0.00	10.00	0.00	20.00	0.00	0.00
1	0.05	19.81	0.19	0.19	19.54	0.16	0.16
2	1.06	19.45	0.55	0.55	18.94	0.51	0.53
3	2.00	19.27	0.78	0.78	18.78	0.71	0.73
4	3.33	19.03	0.87	0.87	18.66	0.80	0.87
5	4.17	18.80	1.20	1.20	18.88	1.12	1.10
6	5.00	18.63	1.37	1.37	18.71	1.26	1.32

Loading Stage (1)						
Loading	Stress	Kg/cm ²	Dial 1		Dial 2	Settlement
			mm	mm		
1	2.50	18.67	1.35	18.66	1.30	1.21
2	1.25	18.75	1.25	18.68	1.01	1.13
3	0.100	18.85	1.07	19.28	0.79	0.93

Loading Stage (2)						
Loading Stage	Stress kg/cm ²	Dial 1 mm	Settlement mm	Dial 2 mm	Settlement mm	Average
1	1.00	18.78	1.21	19.01	0.87	1.00
2	2.00	18.71	1.30	18.10	1.03	2.00
3	3.33	18.50	1.31	18.84	1.16	3.33
4	4.17	18.38	1.40	18.70	1.30	4.17





1. 21/04/2023
 2. 21/04/2023
 3. 21/04/2023
 4. 21/04/2023
 5. 21/04/2023
 6. 21/04/2023
 7. 21/04/2023
 8. 21/04/2023
 9. 21/04/2023
 10. 21/04/2023

1. 21/04/2023	2. 21/04/2023	3. 21/04/2023	4. 21/04/2023	5. 21/04/2023	6. 21/04/2023	7. 21/04/2023	8. 21/04/2023	9. 21/04/2023	10. 21/04/2023
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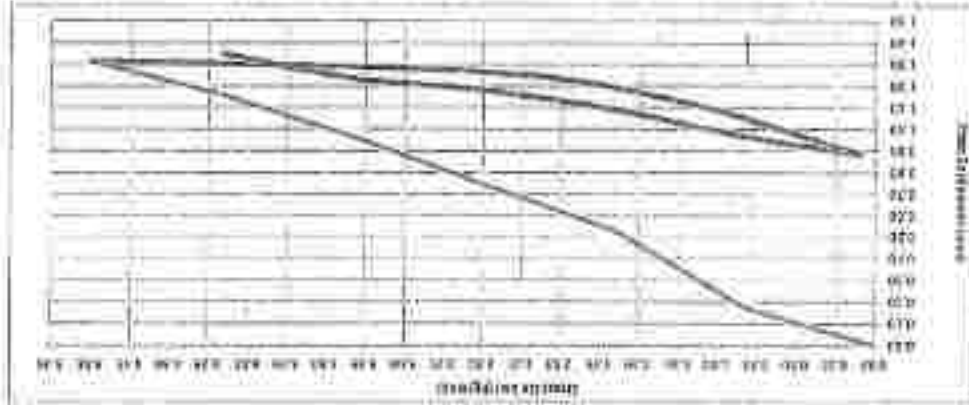
1. 21/04/2023	2. 21/04/2023	3. 21/04/2023	4. 21/04/2023	5. 21/04/2023	6. 21/04/2023	7. 21/04/2023	8. 21/04/2023	9. 21/04/2023	10. 21/04/2023
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1. 21/04/2023

1. 21/04/2023	2. 21/04/2023	3. 21/04/2023	4. 21/04/2023	5. 21/04/2023	6. 21/04/2023	7. 21/04/2023	8. 21/04/2023	9. 21/04/2023	10. 21/04/2023
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1. 21/04/2023	2. 21/04/2023	3. 21/04/2023	4. 21/04/2023	5. 21/04/2023	6. 21/04/2023	7. 21/04/2023	8. 21/04/2023	9. 21/04/2023	10. 21/04/2023
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1. 21/04/2023	2. 21/04/2023	3. 21/04/2023	4. 21/04/2023	5. 21/04/2023	6. 21/04/2023	7. 21/04/2023	8. 21/04/2023	9. 21/04/2023	10. 21/04/2023
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1. 21/04/2023

1. 21/04/2023
 2. 21/04/2023
 3. 21/04/2023
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 5. 21/04/2023
 6. 21/04/2023
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1. 21/04/2023
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 6. 21/04/2023
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 8. 21/04/2023
 9. 21/04/2023
 10. 21/04/2023

Carriway Name :
 Project :
 Test Date : ০০/০০/০০
 Report Date : ১১/০০/০০
 Location :
 Test No. : ০১
 Nondestructive Static Plate Load Test of Soil

DIN 15126

Loading Stage (1)

Loading	Stress	kg/cm ²	Dial 1		Dial 2	mm	Settlement	mm	Average
			Settlement	mm					
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
3	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
4	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
5	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57	4.57
6	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00

Unloading Stage (1)

Loading	Stress	kg/cm ²	Dial 1		Dial 2	mm	Settlement	mm	Average
			Settlement	mm					
1	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
2	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25	1.25
3	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10

Loading Stage (2)

Loading	Stress	kg/cm ²	Dial 1		Dial 2	mm	Settlement	mm	Average
			Settlement	mm					
1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
2	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
3	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50	3.50
4	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17	4.17





1. The following table shows the results of the tests conducted on the material under consideration. The values are given in the units indicated in the brackets. The values are to be used for the design of the structure.

Test No.	Test Result	Units
1	100	mm
2	100	mm
3	100	mm
4	100	mm
5	100	mm

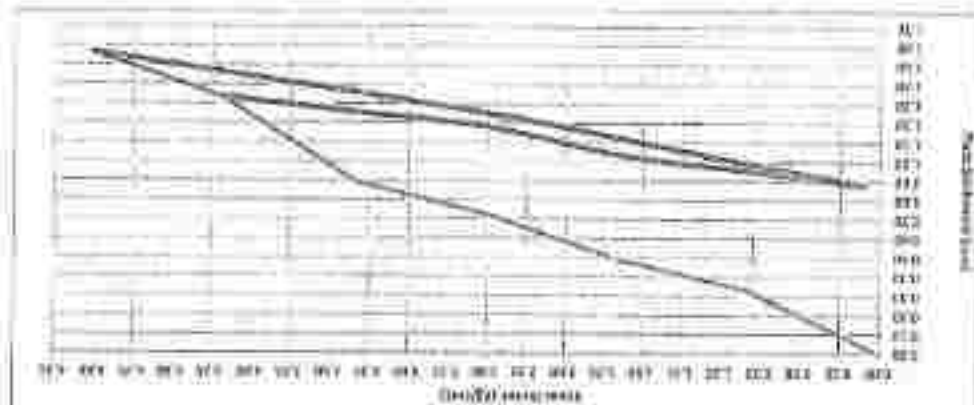
Test No.	Test Result	Units
1	100	mm
2	100	mm
3	100	mm
4	100	mm
5	100	mm

100

Test No.	Test Result	Units
1	100	mm
2	100	mm
3	100	mm
4	100	mm
5	100	mm

Test No.	Test Result	Units
1	100	mm
2	100	mm
3	100	mm
4	100	mm
5	100	mm

Test No.	Test Result	Units
1	100	mm
2	100	mm
3	100	mm
4	100	mm
5	100	mm



Graph showing the relationship between Load (kN) and Displacement (mm).

1. The following table shows the results of the tests conducted on the material under consideration. The values are given in the units indicated in the brackets. The values are to be used for the design of the structure.

Signature / *[Signature]*

- At optimum moisture content = 5.8 %
 - Max. dry density = 2.21 gm/cm³
- Degree of compaction based on proctor test dated At

Test No	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	671+920	1781	2.28	6.4	2.14	96.8%	Comply
2	671+990	1746	2.29	6.4	2.15	97.5%	Comply
3	672+010	1754	2.28	6.4	2.14	96.9%	Comply

ASTM D- 1556

Compaction test by using Sand - Cone Test Method

Company Name : *[Signature]*
 Project : Electric Express Train - HSR From Gouz To Arment
 Testing Date : 15/10/2023
 Soil type : Middle Embankment
 Location : ST From 671+880 To 672+020
 Level : -3 M
 Report No. : 34

Company Name : **قاسم الجاسر**
 Project : **Electric Express Train - HSR From Qass To Armanat**
 Location : **ST: 672+180 E=32.7745621 N=25.6596723**
 Type of sample : **Soil Embankment**
 Delivery Date : **5/10/2023**
 Reporting Date : **9/10/2023**
 Reporting No. : **01-8**

Attached here with the delivered on 5 / 10 / 2023

This sample is representative for 5,000 M³

Materials test

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

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

Signature / 

Signature /

Sieve Size (mm)	Sieve Size (in)	Passing %
0.425	40	27.7
2.00	10	41.5
4.75	4	58.4
9.50	3/8	63.9
12.50	1/2	70.0
19	3/4	76.1
25	1	86.6
37.5	1.5	93.7
50	2	99.5

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Company Name : شركة الجبل
Project : Electric Express Train - HSR From Qous To Armani
Location : ST: 672+180 R=32.77/45621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8



DATE: 05/10/2023
TIME: 10:30 AM



Signature /
[Handwritten Signature]

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.1

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

Company Name : GAIL India Ltd.
Project : Electric Express Train - HSR From Gous To Armani
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8



Company Name : شركة الجاد
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

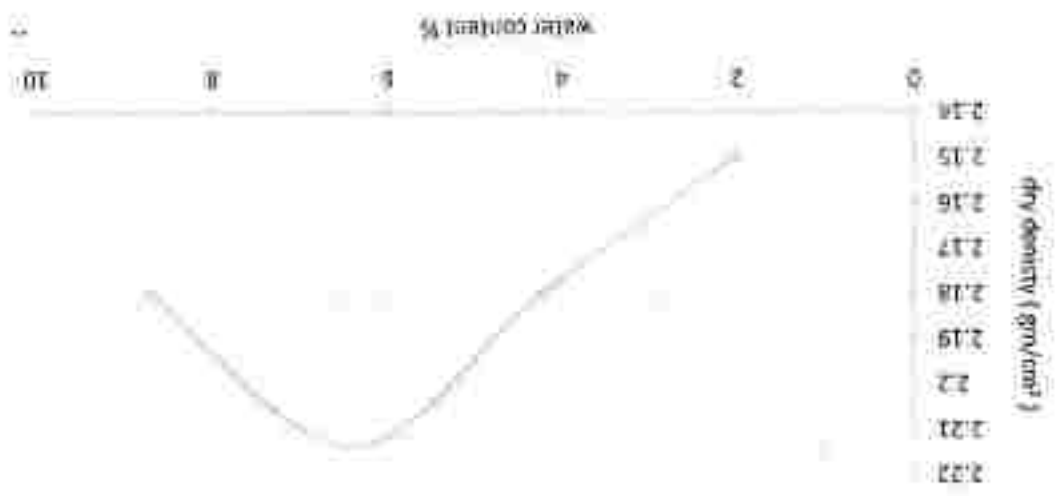
**Results of liquid limit and plasticity index
of soils according to ASTM D-4318**

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

Signature /
[Signature]

Company Name : ...
Project : Electric Express Train - HSR From Qous To Arnam
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

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



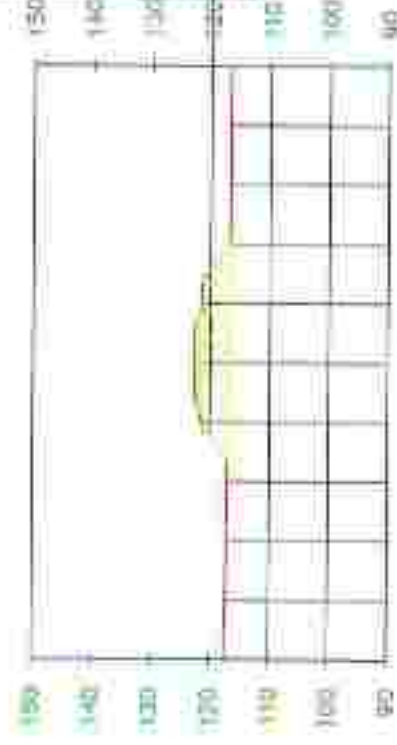
- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 4.8

Signature : ...



...
...
...

672+170.00

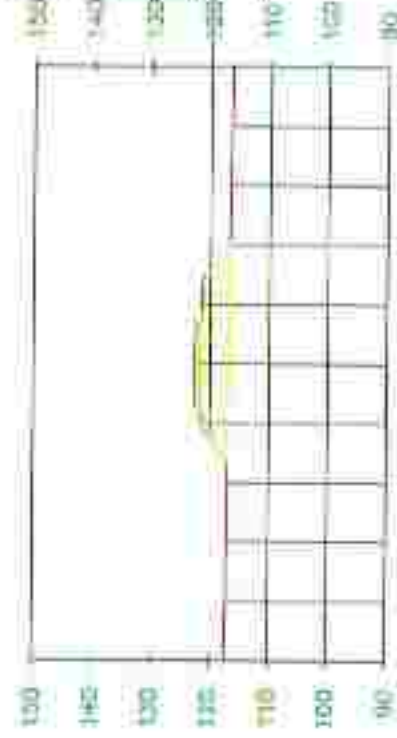


Total Volume at 25°C: \$77.41 (L)	
Cell Mass	0.100
75 ml Media	105.91
Cell Vol	0.100
75 ml	105.91
Cells Cell Vol	0.100
Cells Cell Vol	0.100
Cell Vol	0.100

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
00		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		
160		
170		
180		
190		
200		
210		
220		
230		
240		
250		
260		
270		
280		
290		
300		
310		
320		
330		
340		
350		
360		
370		
380		
390		
400		
410		
420		
430		
440		
450		
460		
470		
480		
490		
500		
510		
520		
530		
540		
550		
560		
570		
580		
590		
600		
610		
620		
630		
640		
650		
660		
670		
680		
690		
700		
710		
720		
730		
740		
750		
760		
770		
780		
790		
800		
810		
820		
830		
840		
850		
860		
870		
880		
890		
900		
910		
920		
930		
940		
950		
960		
970		
980		
990		
1000		

10/10/2019

$$672 + 180 = 00$$

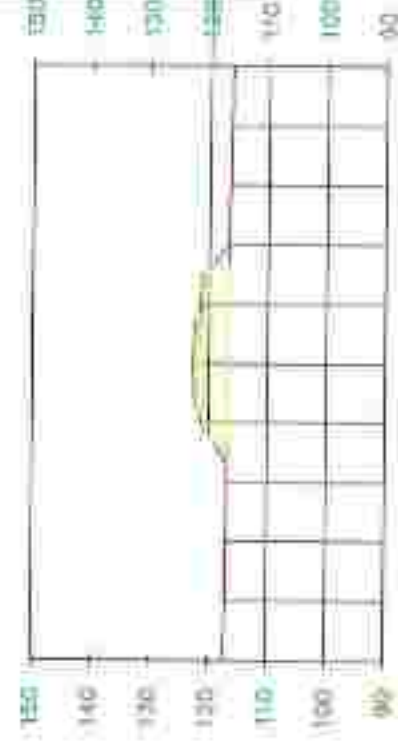


Costo Medio di Distribuzione	0.00
Costo Medio	127.70
Costo Unitario	11.11
Costo Totale	127.70
Costo Medio	127.70
Costo Unitario	11.11
Costo Totale	127.70
Costo Medio	127.70
Costo Unitario	11.11
Costo Totale	127.70

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
50		
40		
30		28.41
20		26.75
10	14.70	16.10
0		15.00
-10		14.00
-20		
-30		
-40		
-50		

क्या जहाँ जहाँ जाऊँ

672+190,00

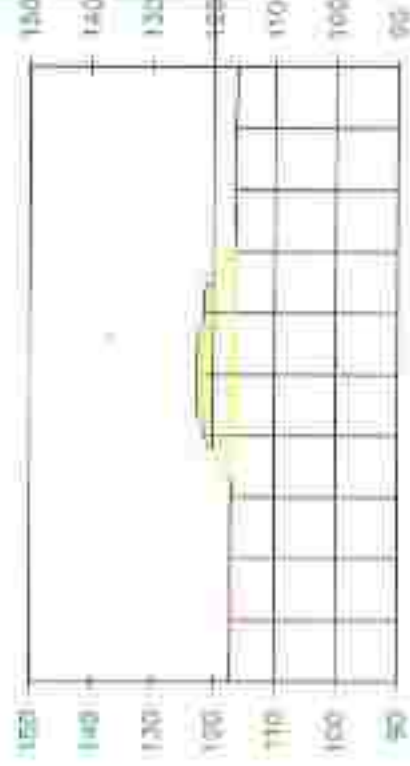


Total Volume = 64000	(72 x 880) 63360
Cut Area	9300
Fk Area	12800
Cut Vol	8700
Fk Vol	11360
Start Cut Vol	0.00
Final Cut Vol	8700
Cut Vol	-8700.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
III		
IV		
V		
VI		100
VII	100.0	100.0
VIII		102.0
IX		
X		
XI		
XII		

672+140.00

Total Width at Station 672+140.00	
Cut Area	0.00
Fill Area	123.45
Cut Vol	0.00
Fill Vol	1233.30
Comp. Cut Vol	0.00
Comp. Fill Vol	10218.54
Net Vol	-8215.54



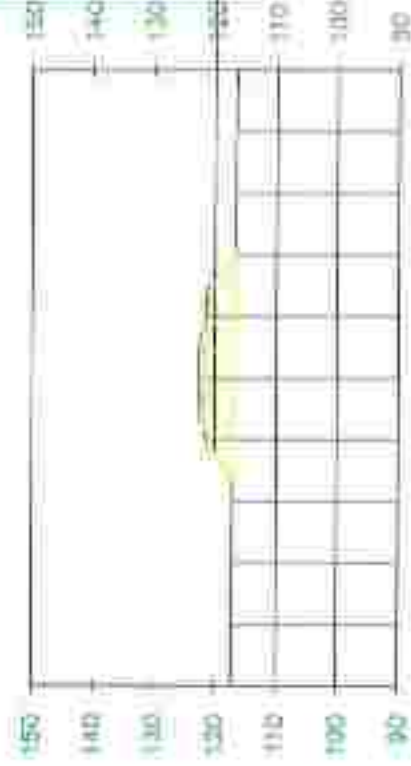
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

Handwritten notes and a signature in the margin.



672+150.00

Total Width at Station 672+150.00	
Cut Area	0.00
Fill Area	758.82
Cut Vol	0.00
Fill Vol	1216.47
Comp. Cut Vol	0.00
Comp. Fill Vol	8335.94
Net Vol	-8335.94

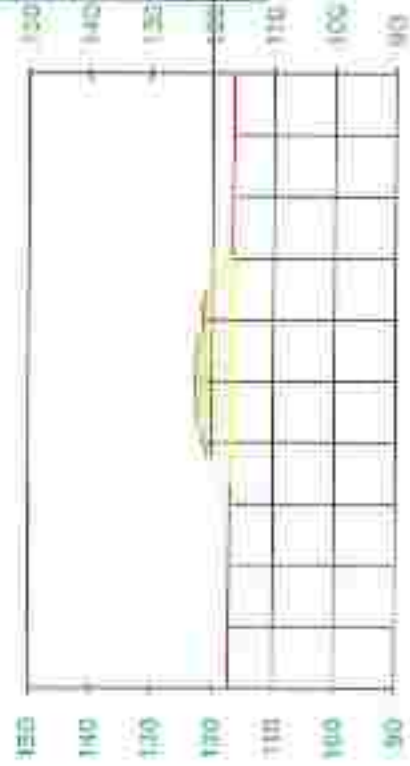


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

Handwritten notes and a signature in the margin.

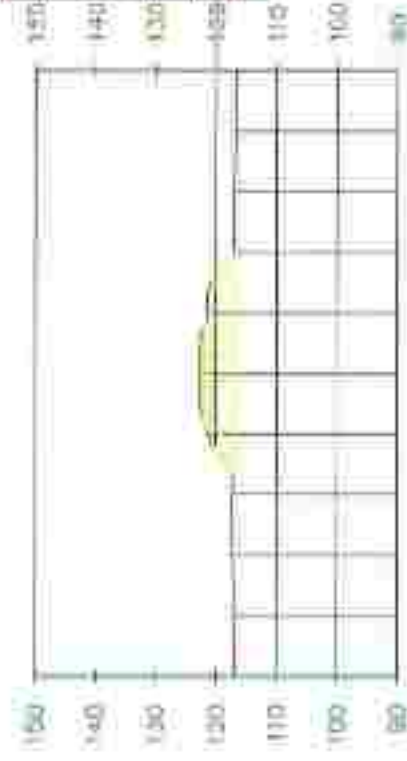
672+160.00

Total Width at Station 672+160.00	
Cut Area	0.00
Fill Area	158.70
Cut Vol	0.00
Fill Vol	1234.15
Comp. Cut Vol	0.00
Comp. Fill Vol	9128.09
Net Vol	-9128.09



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

[672+110.00]

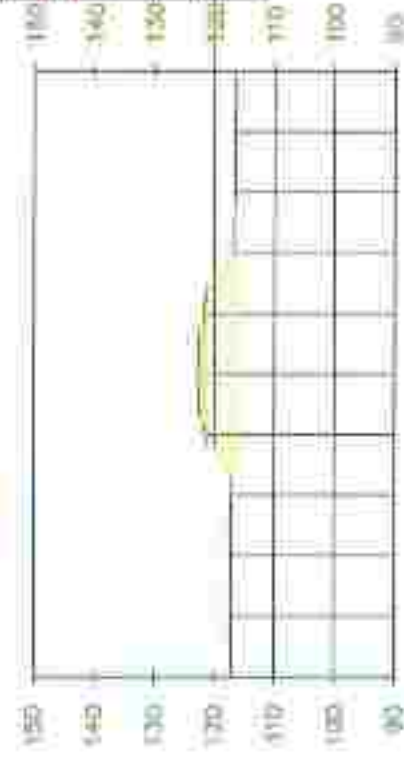


Total Volume at Station 672+110.00	
Cut Area	0.00
Fill Area	1,200.00
Cut Vol	0.00
Fill Vol	1,200.00
Sum Cut Vol	0.00
Sum Fill Vol	1,200.00
Net Vol	-1,200.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

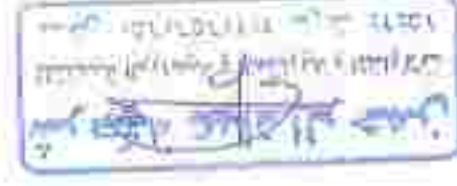


[672+120.00]

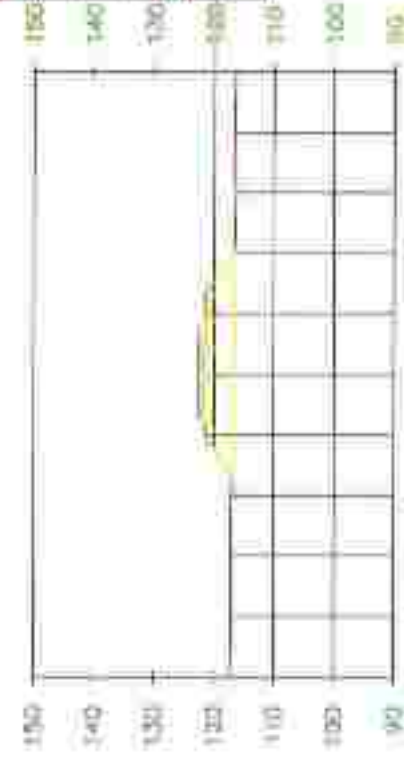


Total Volume at Station 672+120.00	
Cut Area	0.00
Fill Area	1,200.00
Cut Vol	0.00
Fill Vol	1,200.00
Sum Cut Vol	0.00
Sum Fill Vol	1,200.00
Net Vol	-1,200.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		



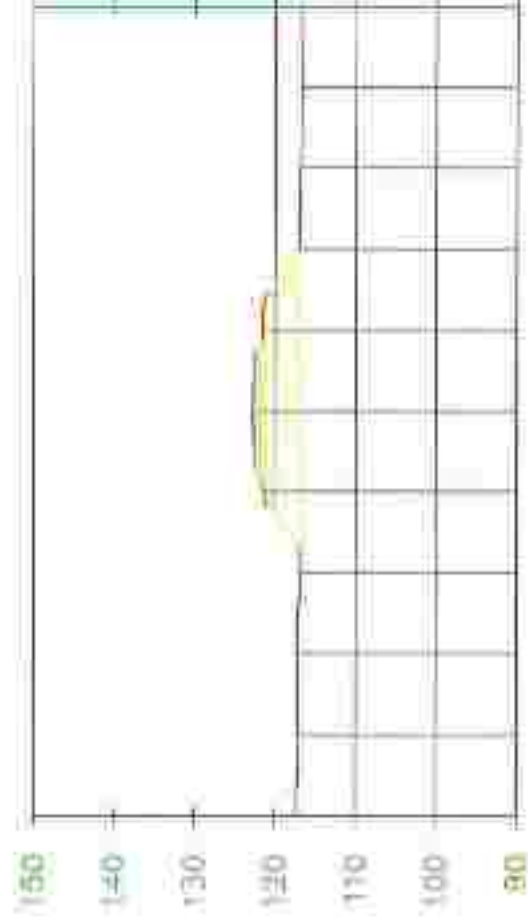
[672+130.00]



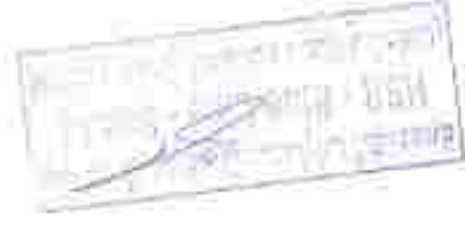
Total Volume at Station 672+130.00	
Cut Area	0.00
Fill Area	1,200.00
Cut Vol	0.00
Fill Vol	1,200.00
Sum Cut Vol	0.00
Sum Fill Vol	1,200.00
Net Vol	-1,200.00

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+090.00



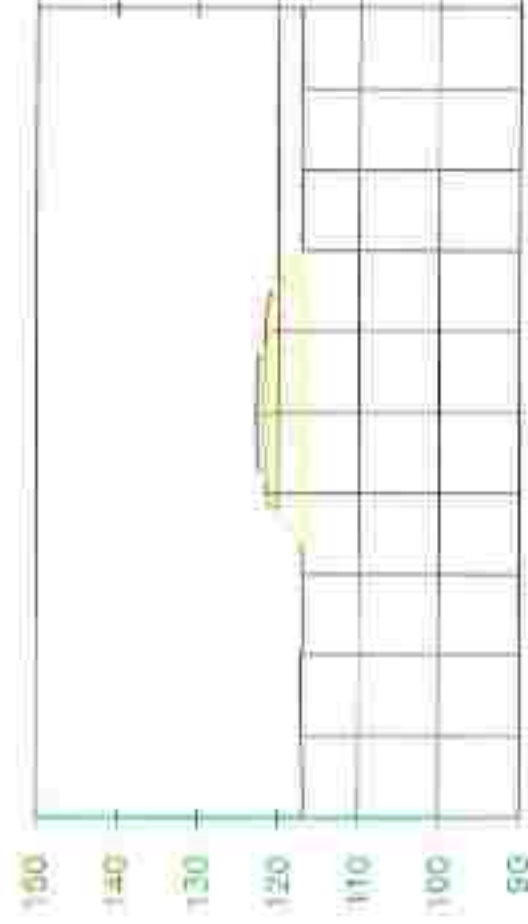
Total Volume at Station 672+100.00	
Cut Area	0.00
Fill Area	127.25
Cut Vol	0.00
Fill Vol	1297.15
Cum Cut Vol	0.00
Cum Fill Vol	45498.13
Net Vol	-45498.13



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10		
0	121.94	121.94
10	121.94	121.94
20		
30		
40		



672+100.00

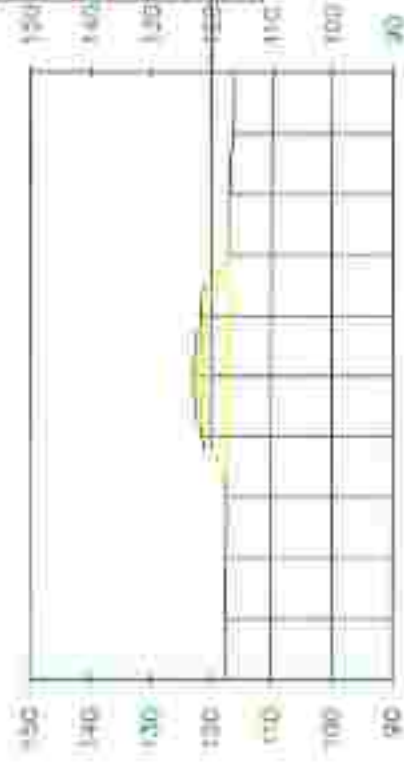


Total Volume at Station 672+100.00	
Cut Area	0.00
Fill Area	124.52
Cut Vol	0.00
Fill Vol	1259.82
Cum Cut Vol	0.00
Cum Fill Vol	46714.95
Net Vol	-46714.95



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10		
0	121.94	121.94
10	121.94	121.94
20		
30		
40		

672+060.00



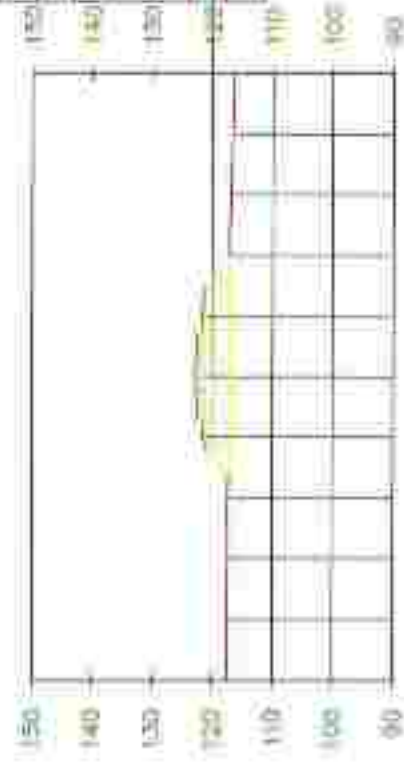
Total Volume at Station 672+060.00	
Cut Area	0.00
Fill Area	1073.07
Sub Vol	0.00
Fill Vol	1304.32
Over Cut Vol	0.00
Sum Cut Vol	41075.18
Sub Vol	-41816.19

HSR - Blue Line - South
10/15/2019 10:15:18 AM
10/15/2019 10:15:18 AM

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

10/15/2019 10:15:18 AM
10/15/2019 10:15:18 AM

672+070.00

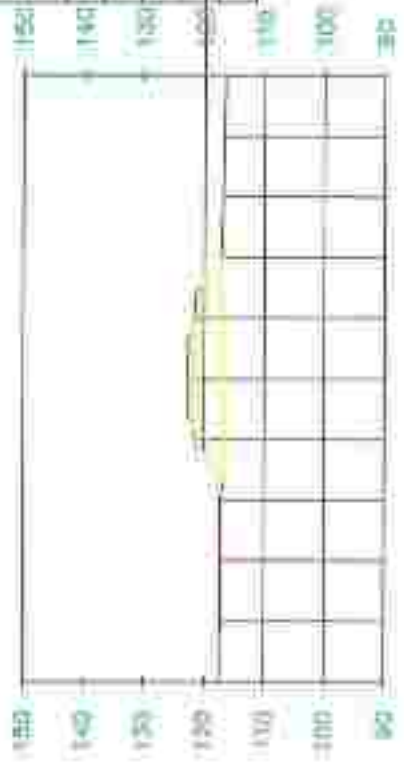


Total Volume at Station 672+070.00	
Cut Area	0.00
Fill Area	127.87
Sub Vol	0.00
Fill Vol	1353.01
Over Cut Vol	0.00
Sum Cut Vol	62570.25
Sub Vol	-63223.20

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

10/15/2019 10:15:18 AM
10/15/2019 10:15:18 AM

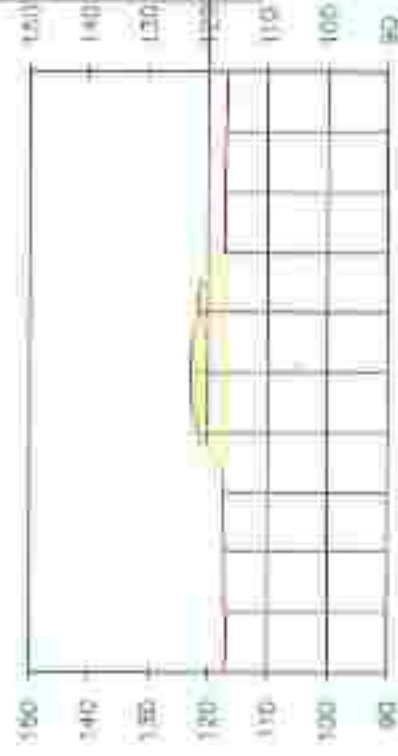
672+080.00



Total Volume at Station 672+080.00	
Cut Area	0.00
Fill Area	135.89
Sub Vol	0.00
Fill Vol	1284.27
Over Cut Vol	0.00
Sum Cut Vol	44184.27
Sub Vol	-44184.27

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

[672+000.00]

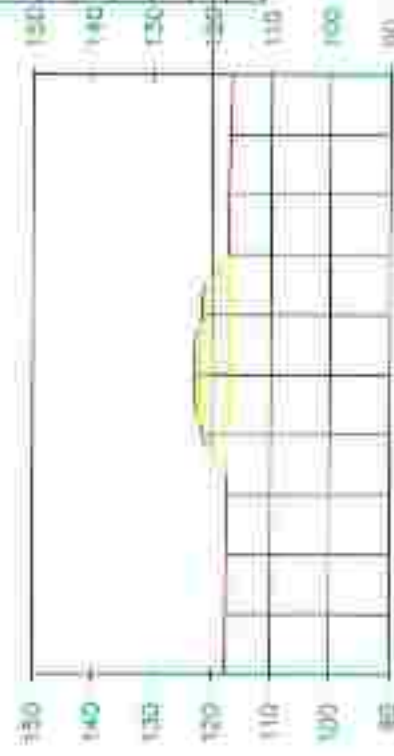


Total Volume at Station 672+000.00	
Cut Area	0.00
Fill Area	133.38
Cut Vol	0.00
Fill Vol	12,263.8
Sum Cut Vol	0.00
Sum Fill Vol	24,311.65
Net Vol	-24,311.65

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
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[672+010.00]

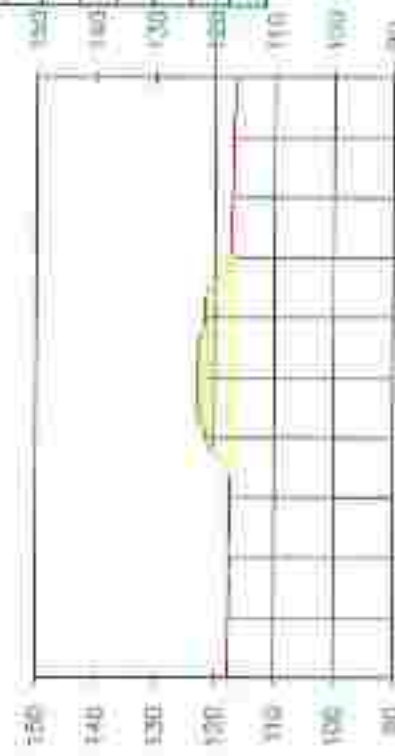


Total Volume at Station 672+010.00	
Cut Area	0.00
Fill Area	133.38
Cut Vol	0.00
Fill Vol	12,263.8
Sum Cut Vol	0.00
Sum Fill Vol	24,311.65
Net Vol	-24,311.65

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------



[672+020.00]

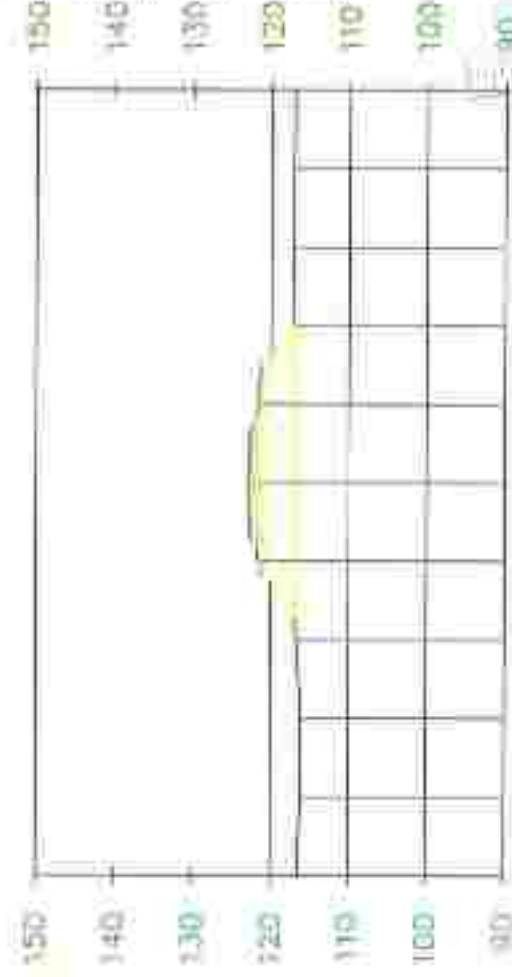


Total Volume at Station 672+020.00	
Cut Area	0.00
Fill Area	133.38
Cut Vol	0.00
Fill Vol	12,263.8
Sum Cut Vol	0.00
Sum Fill Vol	24,311.65
Net Vol	-24,311.65

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------



671+980.00

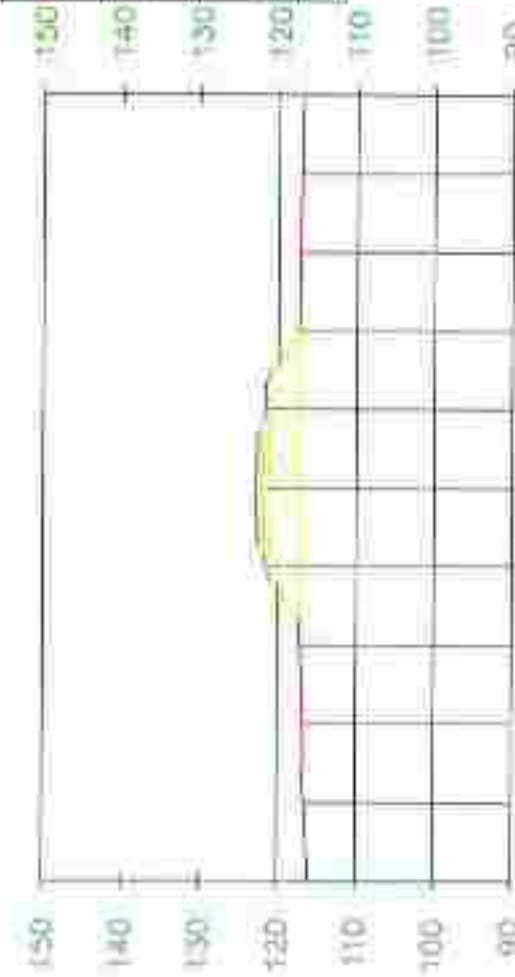


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10		
0	122.06	121.63
-10		
-20		
-30		
-40		

Total Volume at Station 671+980.00	
Cut Area	11.00
Fill Area	120.73
Cut Vol	0.00
Fill Vol	1320.72
Cum Cut Vol	0.00
Cum Fill Vol	31807.09
Net Vol	-31807.09



671+990.00

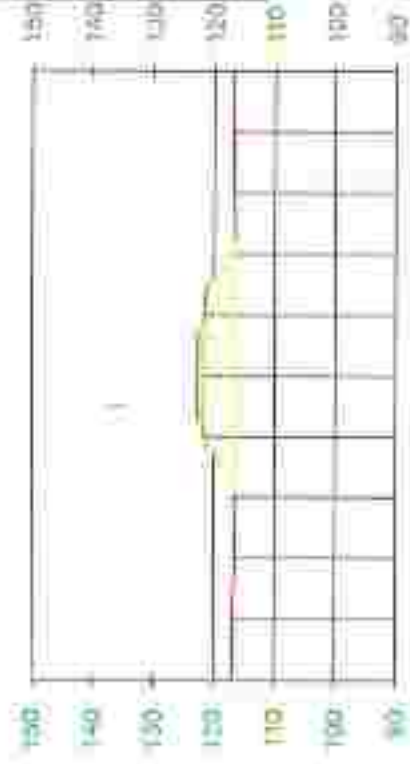


OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
40		
30		
20		
10		
0	122.05	121.17
-10		
-20		
-30		
-40		

Total Volume at Station 671+990.00	
Cut Area	0.00
Fill Area	124.05
Cut Vol	0.00
Fill Vol	1273.80
Cum Cut Vol	0.00
Cum Fill Vol	33074.89
Net Vol	-33074.89



[671+950.00]

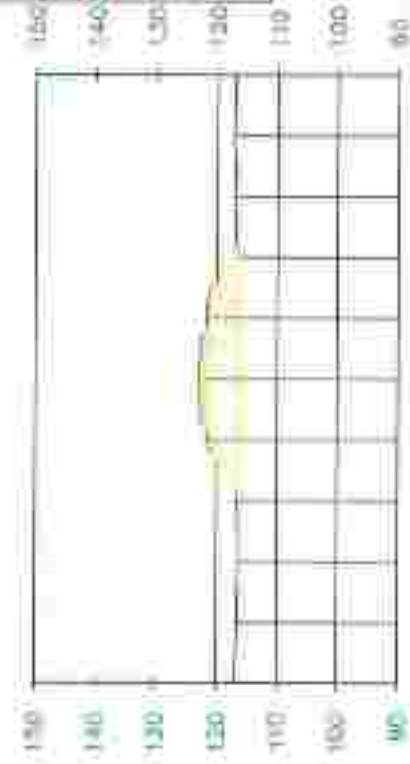


Total Volume at Station 671+950.00	
Cut Area	0.00
Fill Area	129.82
Cut Vol	0.00
Fill Vol	165.03
Cum Cut Vol	0.00
Cum Fill Vol	2741.23
Net Vol	-2381.23

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------

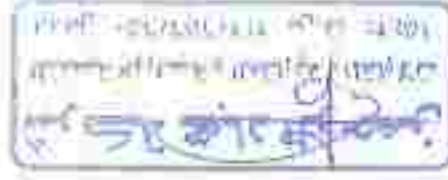


[671+960.00]

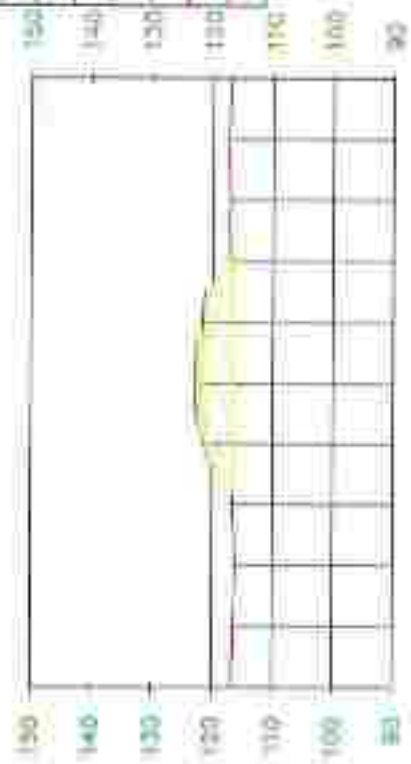


Total Volume at Station 671+960.00	
Cut Area	0.00
Fill Area	153.18
Cut Vol	0.00
Fill Vol	153.18
Cum Cut Vol	0.00
Cum Fill Vol	2894.42
Net Vol	-2894.42

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
--------	---------------------	---------------------



[671+970.00]

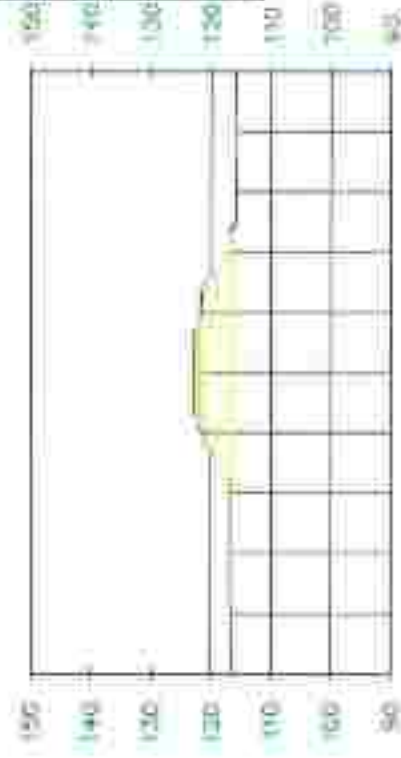


Total Volume at Station 671+970.00	
Cut Area	0.00
Fill Area	141.41
Cut Vol	0.00
Fill Vol	141.41
Cum Cut Vol	0.00
Cum Fill Vol	3035.83
Net Vol	-3035.83

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
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[671+920.00]



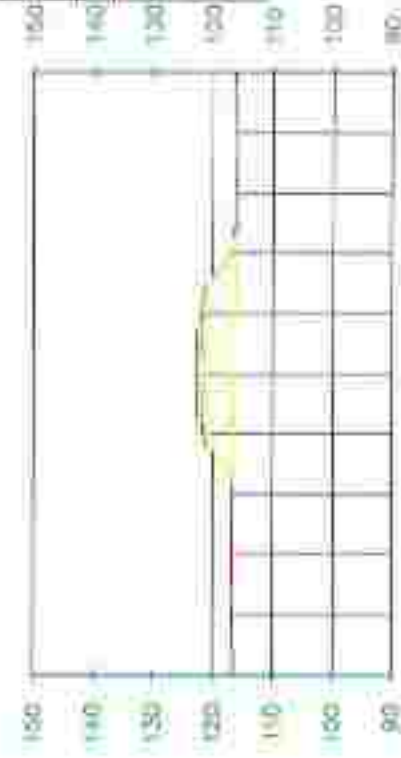
Total Volume at Station 671+920.00	
Out Area	15.92
Fin Area	157.19
Out Vol	0.00
Fin Vol	1653.86
Comp Out Vol	0.00
Comp Fin Vol	20526.11
Net Vol	-20362.25

OFFSET	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150																													
EXISTING ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
PROPOSED ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150

157.19
1653.86
20526.11
-20362.25

157.19
1653.86
20526.11
-20362.25

[671+930.00]

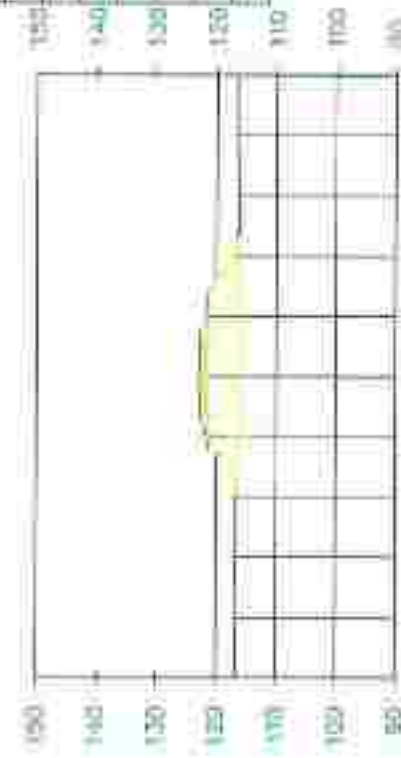


Total Volume at Station 671+930.00	
Out Area	0.00
Fin Area	155.75
Out Vol	0.00
Fin Vol	1594.81
Comp Out Vol	0.00
Comp Fin Vol	24012.41
Net Vol	-24012.41

OFFSET	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150																													
EXISTING ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
PROPOSED ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150

155.75
1594.81
24012.41
-24012.41

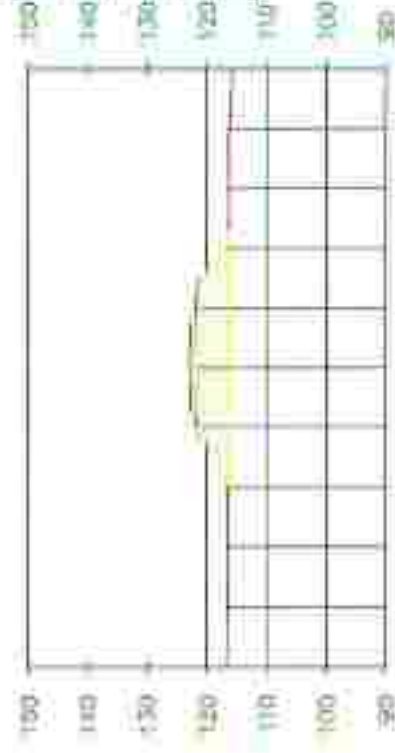
[671+940.00]



Total Volume at Station 671+940.00	
Out Area	0.00
Fin Area	160.38
Out Vol	0.00
Fin Vol	1620.88
Comp Out Vol	0.00
Comp Fin Vol	24012.41
Net Vol	-24012.41

OFFSET	150	140	130	120	110	100	90	80	70	60	50	40	30	20	10	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150																													
EXISTING ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150
PROPOSED ELEVATIONS	145	140	135	130	125	120	115	110	105	100	95	90	85	80	75	70	65	60	55	50	45	40	35	30	25	20	15	10	5	0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	145	150

[671+890.00]



Total Volume at Station 671+890.00	
Cut Area	3.00
Fill Area	155.07
Cut Vol	3.00
Fill Vol	1504.81
Earth Cut Vol	3.00
Earth Fill Vol	1501.48
Net Vol	-1728.48

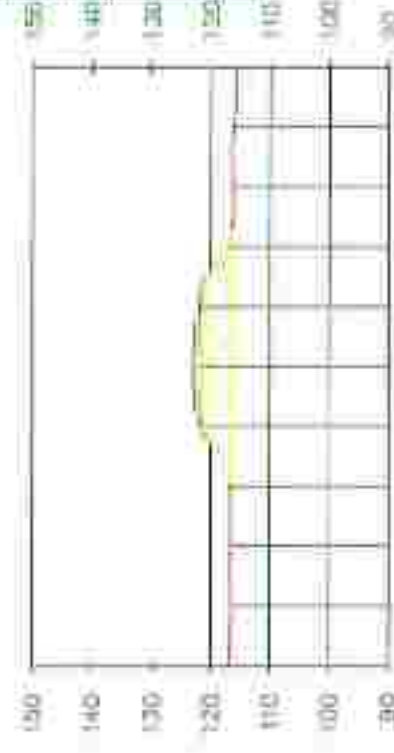
OFFSET

EXISTING ELEVATIONS

PROPOSED ELEVATIONS



[671+900.00]



Total Volume at Station 671+900.00	
Cut Area	10.27
Fill Area	154.98
Cut Vol	10.27
Fill Vol	1552.18
Earth Cut Vol	10.27
Earth Fill Vol	1551.82
Net Vol	-1561.55

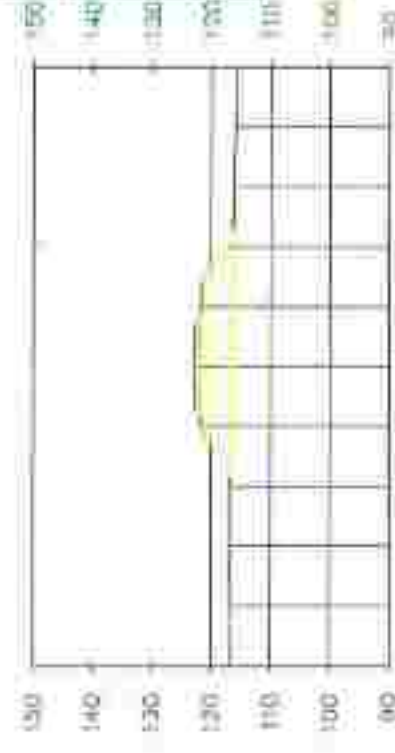
OFFSET

EXISTING ELEVATIONS

PROPOSED ELEVATIONS



[671+910.00]



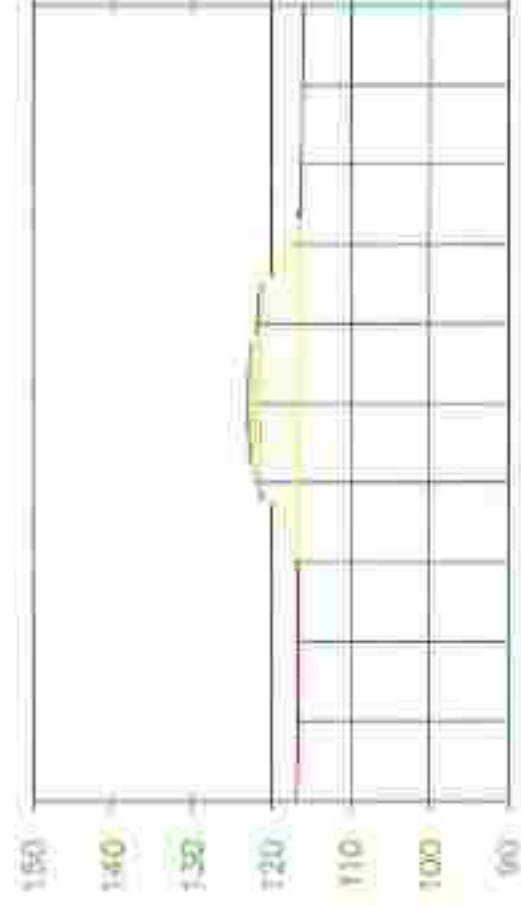
Total Volume at Station 671+910.00	
Cut Area	0.00
Fill Area	155.37
Cut Vol	0.00
Fill Vol	1552.67
Earth Cut Vol	0.00
Earth Fill Vol	1552.30
Net Vol	-21054.30

OFFSET

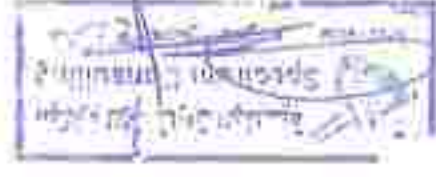
EXISTING ELEVATIONS

PROPOSED ELEVATIONS

671+870.00

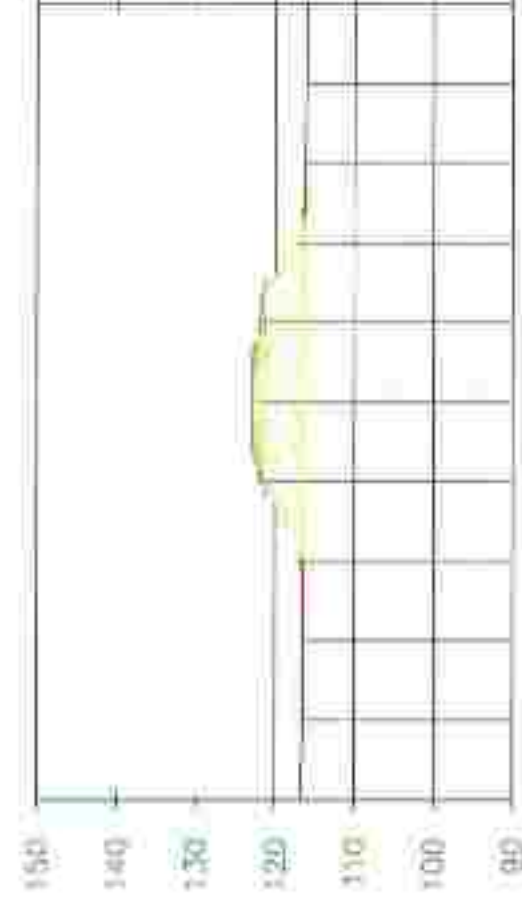


Total Volume at Station 671+870.00	
Cut Area	0.00
Fill Area	157.04
Cut Vol	0.00
Fill Vol	1578.03
Cum Cut Vol	0.00
Cum Fill Vol	1578.03
Net Vol	-1420.56



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
-40		
-30		
-20		
-10		
0	122.17	122.17
10	122.17	122.17
20		
30		
40		

671+880.00

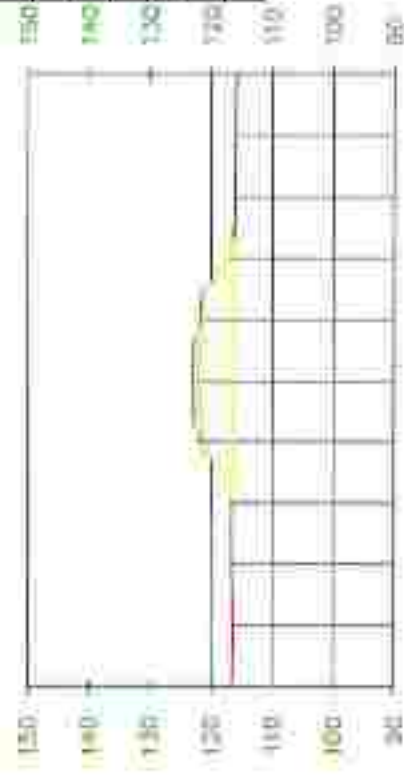


Total Volume at Station 671+880.00	
Cut Area	0.00
Fill Area	155.81
Cut Vol	0.00
Fill Vol	1555.00
Cum Cut Vol	0.00
Cum Fill Vol	1555.00
Net Vol	-1405.56



OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
-40		
-30		
-20		
-10		
0	122.16	122.16
10	122.16	122.16
20		
30		
40		

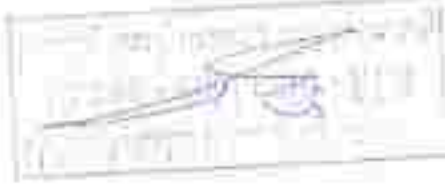
[671+840.00]



Total Volume at Station 671+840.00

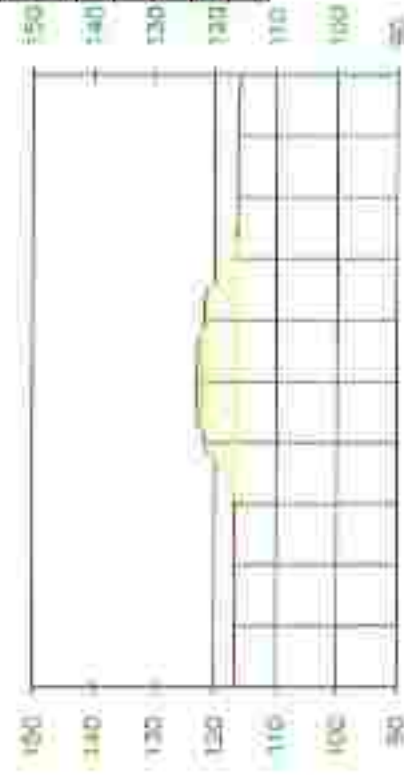
Cut Area	0.00
Fill Area	132.56
Cut Vol	0.00
Fill Vol	1032.74
Comp Cut Vol	0.00
Comp Fill Vol	1032.74
Net Vol	-1032.74

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	111.20	111.20
10	111.20	111.20
20	111.20	111.20
30	111.20	111.20
40	111.20	111.20
50	111.20	111.20
60	111.20	111.20
70	111.20	111.20
80	111.20	111.20
90	111.20	111.20



Handwritten signature and stamp.

[671+850.00]



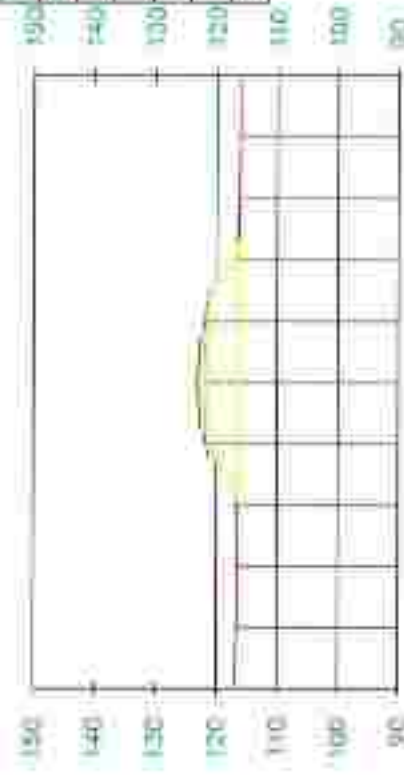
Total Volume at Station 671+850.00

Cut Area	0.00
Fill Area	147.18
Cut Vol	0.00
Fill Vol	1012.02
Comp Cut Vol	0.00
Comp Fill Vol	11670.12
Net Vol	-11670.12

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	111.20	111.20
10	111.20	111.20
20	111.20	111.20
30	111.20	111.20
40	111.20	111.20
50	111.20	111.20
60	111.20	111.20
70	111.20	111.20
80	111.20	111.20
90	111.20	111.20

Handwritten signature and stamp.

[671+860.00]

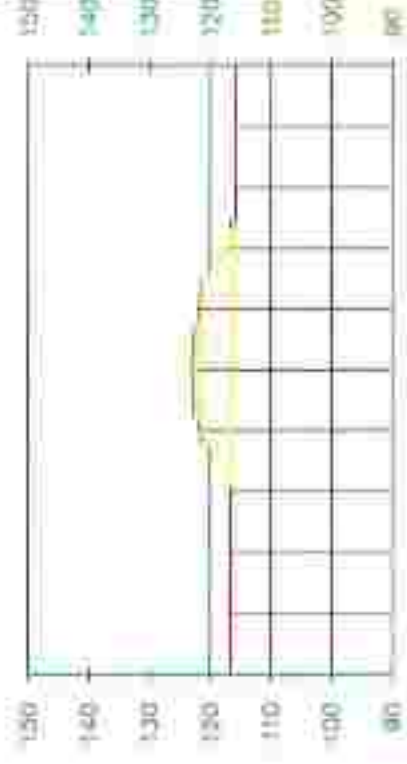


Total Volume at Station 671+860.00

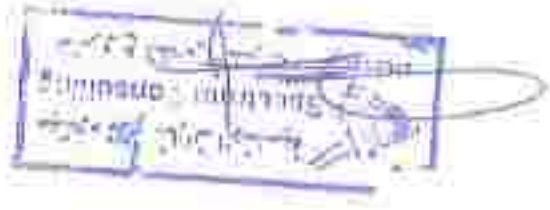
Cut Area	0.00
Fill Area	132.51
Cut Vol	0.00
Fill Vol	1012.02
Comp Cut Vol	0.00
Comp Fill Vol	11670.12
Net Vol	-11670.12

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	111.20	111.20
10	111.20	111.20
20	111.20	111.20
30	111.20	111.20
40	111.20	111.20
50	111.20	111.20
60	111.20	111.20
70	111.20	111.20
80	111.20	111.20
90	111.20	111.20

671+810.00

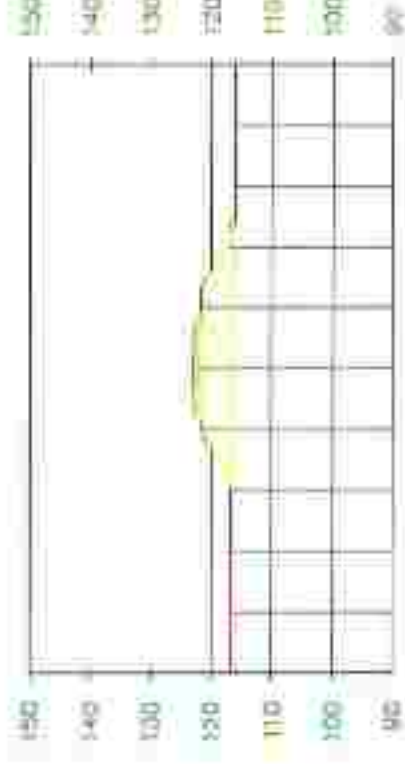


Total Volume at Station 671+810.00	
Cut Area	8.50
Fill Area	106.75
Cut Vol	8.00
Fill Vol	1504.34
Cutn Out Vol	0.00
Cutn Fill Vol	8106.60
Net Vol	-1496.34



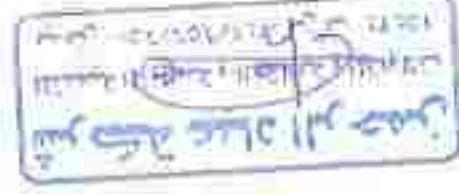
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	110.00	110.00
10	110.00	110.00
20	110.00	110.00
30	110.00	110.00
40	110.00	110.00
50	110.00	110.00
60	110.00	110.00
70	110.00	110.00
80	110.00	110.00
90	110.00	110.00

671+820.00

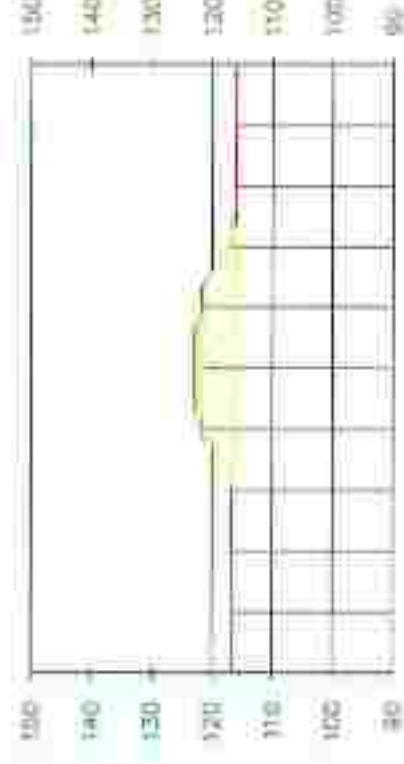


Total Volume at Station 671+820.00	
Cut Area	8.00
Fill Area	166.10
Cut Vol	8.00
Fill Vol	1664.25
Cutn Out Vol	8.00
Cutn Fill Vol	8771.15
Net Vol	-8771.15

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	110.00	110.00
10	110.00	110.00
20	110.00	110.00
30	110.00	110.00
40	110.00	110.00
50	110.00	110.00
60	110.00	110.00
70	110.00	110.00
80	110.00	110.00
90	110.00	110.00



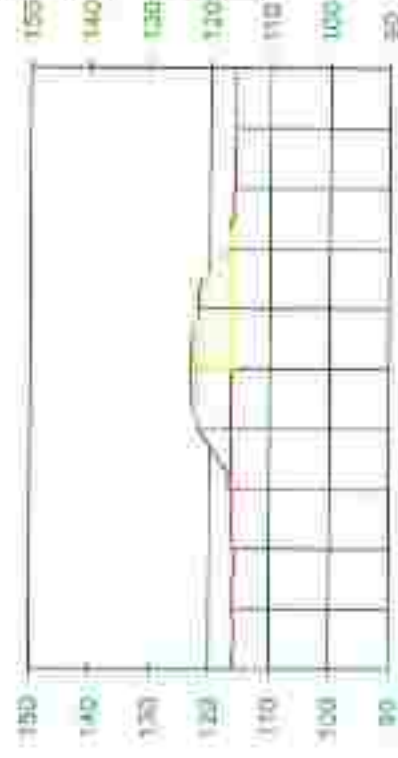
671+830.00



Total Volume at Station 671+830.00	
Cut Area	8.00
Fill Area	166.10
Cut Vol	8.00
Fill Vol	1664.25
Cutn Out Vol	8.00
Cutn Fill Vol	8771.15
Net Vol	-8771.15

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	110.00	110.00
10	110.00	110.00
20	110.00	110.00
30	110.00	110.00
40	110.00	110.00
50	110.00	110.00
60	110.00	110.00
70	110.00	110.00
80	110.00	110.00
90	110.00	110.00

671+780,00



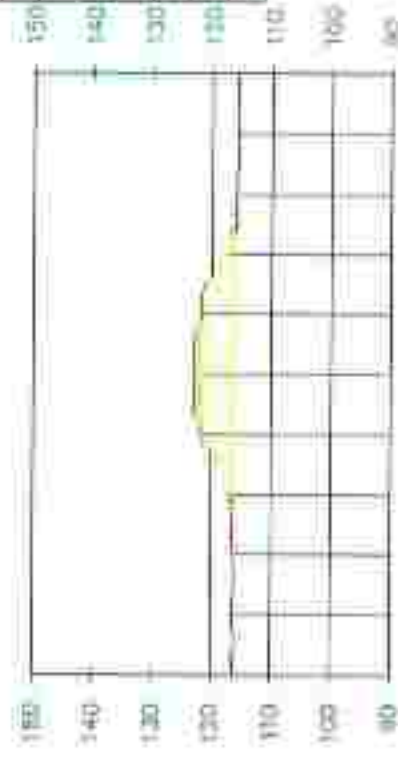
10	Cost Asset	0.00
11	Prep. Asset	94.52
20	Cost Inv.	0.00
21	Prep. Inv.	474.39
30	Cost Sold	0.00
31	Cost Inv. Sold	474.39
40	Net Inv.	-474.39

self-organizing system

Handwritten signature: *[Signature]*

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0		
10		
20		
30		
40		
50		
60		
70		
80		
90		
100		
110		
120		
130		
140		
150		
160		
170		
180		
190		
200		
210		
220		
230		
240		
250		
260		
270		
280		
290		
300		
310		
320		
330		
340		
350		
360		
370		
380		
390		
400		
410		
420		
430		
440		
450		
460		
470		
480		
490		
500		
510		
520		
530		
540		
550		
560		
570		
580		
590		
600		
610		
620		
630		
640		
650		
660		
670		
680		
690		
700		
710		
720		
730		
740		
750		
760		
770		
780		
790		
800		
810		
820		
830		
840		
850		
860		
870		
880		
890		
900		
910		
920		
930		
940		
950		
960		
970		
980		
990		
1000		

871+790.00

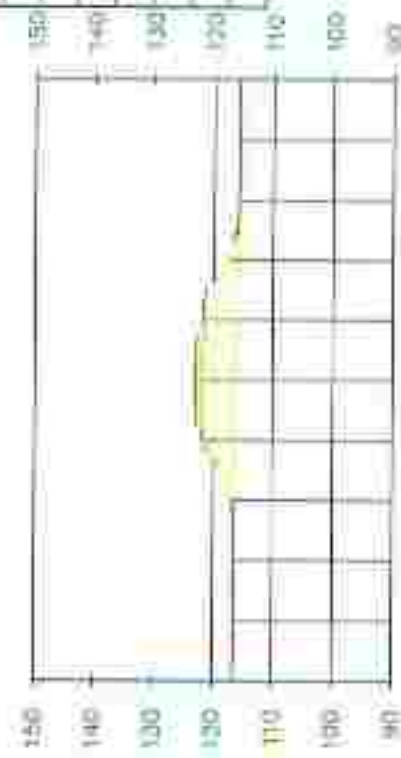


Total Volume at Station 011+75.00	
Cut Area	0.00
Fill Area	150.24
Cut Vol	0.00
Fill Vol	1,036.16
Earth Cut Vol	0.00
Gravel Fill Vol	1,036.16
Total Vol	1,036.16

१०८/१०८/१०८ - १०८/१०८/१०८
 १०८/१०८/१०८ - १०८/१०८/१०८
 १०८/१०८/१०८ - १०८/१०८/१०८

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
10	114.27	114.27
11	114.27	114.27
12	114.27	114.27
13	114.27	114.27
14	114.27	114.27
15	114.27	114.27
16	114.27	114.27
17	114.27	114.27
18	114.27	114.27
19	114.27	114.27
20	114.27	114.27
21	114.27	114.27
22	114.27	114.27
23	114.27	114.27
24	114.27	114.27
25	114.27	114.27
26	114.27	114.27
27	114.27	114.27
28	114.27	114.27
29	114.27	114.27
30	114.27	114.27
31	114.27	114.27
32	114.27	114.27
33	114.27	114.27
34	114.27	114.27
35	114.27	114.27
36	114.27	114.27
37	114.27	114.27
38	114.27	114.27
39	114.27	114.27
40	114.27	114.27
41	114.27	114.27
42	114.27	114.27
43	114.27	114.27
44	114.27	114.27
45	114.27	114.27
46	114.27	114.27
47	114.27	114.27
48	114.27	114.27
49	114.27	114.27
50	114.27	114.27
51	114.27	114.27
52	114.27	114.27
53	114.27	114.27
54	114.27	114.27
55	114.27	114.27
56	114.27	114.27
57	114.27	114.27
58	114.27	114.27
59	114.27	114.27
60	114.27	114.27
61	114.27	114.27
62	114.27	114.27
63	114.27	114.27
64	114.27	114.27
65	114.27	114.27
66	114.27	114.27
67	114.27	114.27
68	114.27	114.27
69	114.27	114.27
70	114.27	114.27
71	114.27	114.27
72	114.27	114.27
73	114.27	114.27
74	114.27	114.27
75	114.27	114.27
76	114.27	114.27
77	114.27	114.27
78	114.27	114.27
79	114.27	114.27
80	114.27	114.27
81	114.27	114.27
82	114.27	114.27
83	114.27	114.27
84	114.27	114.27
85	114.27	114.27
86	114.27	114.27
87	114.27	114.27
88	114.27	114.27
89	114.27	114.27
90	114.27	114.27
91	114.27	114.27
92	114.27	114.27
93	114.27	114.27
94	114.27	114.27
95	114.27	114.27
96	114.27	114.27
97	114.27	114.27
98	114.27	114.27
99	114.27	114.27
100	114.27	114.27

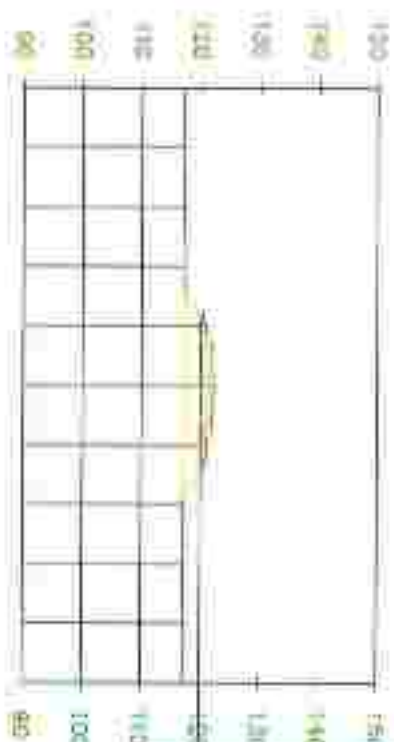
$$571 + 300.00$$



Total Volume at Station 877+000.00	
Out Area	0.00
Fill Area	165.16
Net Vol	0.00
Per Vol	14.81 38
Comp Out Vol	0.00
Comp Fill Vol	144.23
Net Vol	-24.53

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
0	22.31	22.31
1	22.31	22.31
2	22.31	22.31
3	22.31	22.31
4	22.31	22.31
5	22.31	22.31
6	22.31	22.31
7	22.31	22.31
8	22.31	22.31
9	22.31	22.31
10	22.31	22.31
11	22.31	22.31
12	22.31	22.31
13	22.31	22.31
14	22.31	22.31
15	22.31	22.31
16	22.31	22.31
17	22.31	22.31
18	22.31	22.31
19	22.31	22.31
20	22.31	22.31
21	22.31	22.31
22	22.31	22.31
23	22.31	22.31
24	22.31	22.31
25	22.31	22.31
26	22.31	22.31
27	22.31	22.31
28	22.31	22.31
29	22.31	22.31
30	22.31	22.31
31	22.31	22.31
32	22.31	22.31
33	22.31	22.31
34	22.31	22.31
35	22.31	22.31
36	22.31	22.31
37	22.31	22.31
38	22.31	22.31
39	22.31	22.31
40	22.31	22.31
41	22.31	22.31
42	22.31	22.31
43	22.31	22.31
44	22.31	22.31
45	22.31	22.31
46	22.31	22.31
47	22.31	22.31
48	22.31	22.31
49	22.31	22.31
50	22.31	22.31
51	22.31	22.31
52	22.31	22.31
53	22.31	22.31
54	22.31	22.31
55	22.31	22.31
56	22.31	22.31
57	22.31	22.31
58	22.31	22.31
59	22.31	22.31
60	22.31	22.31
61	22.31	22.31
62	22.31	22.31
63	22.31	22.31
64	22.31	22.31
65	22.31	22.31
66	22.31	22.31
67	22.31	22.31
68	22.31	22.31
69	22.31	22.31
70	22.31	22.31
71	22.31	22.31
72	22.31	22.31
73	22.31	22.31
74	22.31	22.31
75	22.31	22.31
76	22.31	22.31
77	22.31	22.31
78	22.31	22.31
79	22.31	22.31
80	22.31	22.31
81	22.31	22.31
82	22.31	22.31
83	22.31	22.31
84	22.31	22.31
85	22.31	22.31
86	22.31	22.31
87	22.31	22.31
88	22.31	22.31
89	22.31	22.31
90	22.31	22.31
91	22.31	22.31
92	22.31	22.31
93	22.31	22.31
94	22.31	22.31
95	22.31	22.31
96	22.31	22.31
97	22.31	22.31
98	22.31	22.31
99	22.31	22.31
100	22.31	22.31

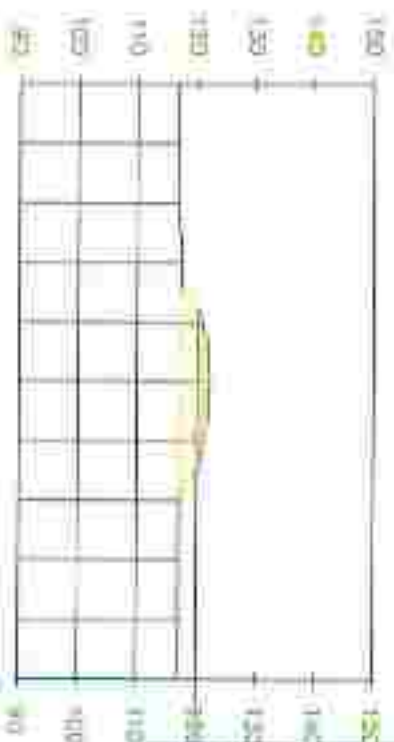
672+720.00



Total Volume at Station 672+720.00	
Cut Area	3.00
Fill Area	84.45
Cut Vol	2.40
Fill Vol	331.70
Over Cut Vol	3.05
Over Fill Vol	85000.04
Net Vol	-25500.83

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

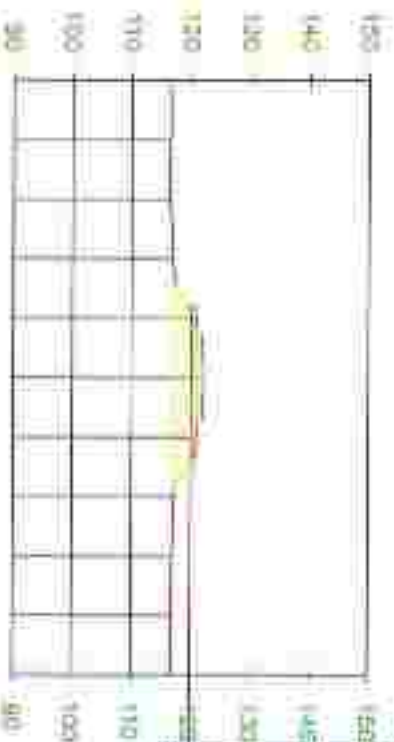
672+730.00



Total Volume at Station 672+730.00	
Cut Area	0.00
Fill Area	81.78
Cut Vol	0.00
Fill Vol	660.88
Over Cut Vol	0.00
Over Fill Vol	65688.34
Net Vol	-65739.72

OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

672+740.00

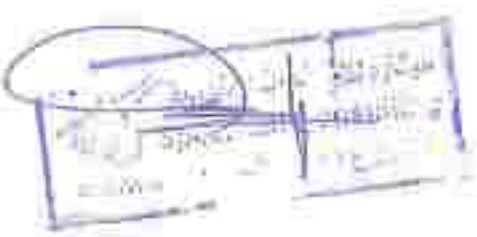


Total Volume at Station 672+740.00	
Cut Area	2.00
Fill Area	58.23
Cut Vol	0.00
Fill Vol	884.51
Over Cut Vol	0.00
Over Fill Vol	70725.44
Net Vol	-70725.44

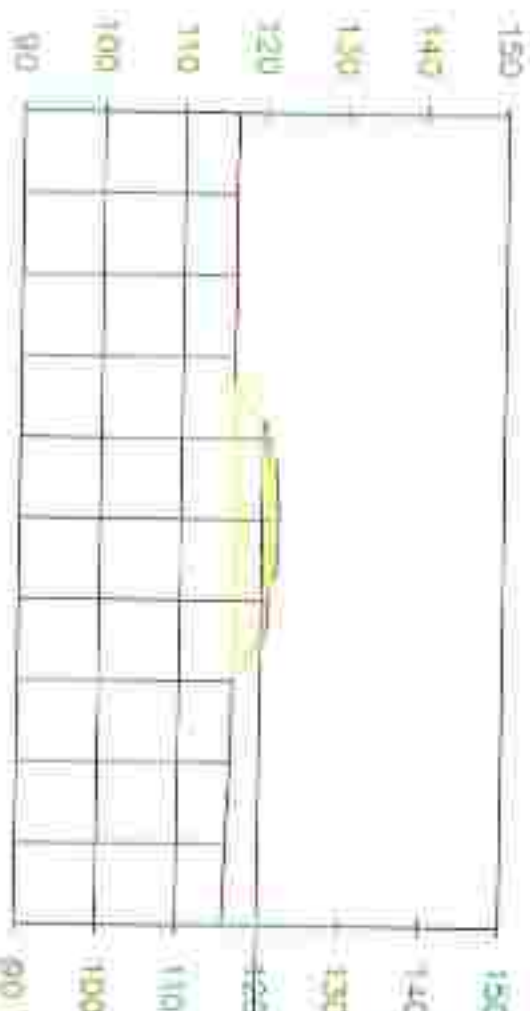
OFFSET	EXISTING ELEVATIONS	PROPOSED ELEVATIONS
150		
140		
130		
120		
110		
100		
90		

شركة عباد الرحمن
للتصميم والبناء والقرابة
10/10/2017
10/10/2017

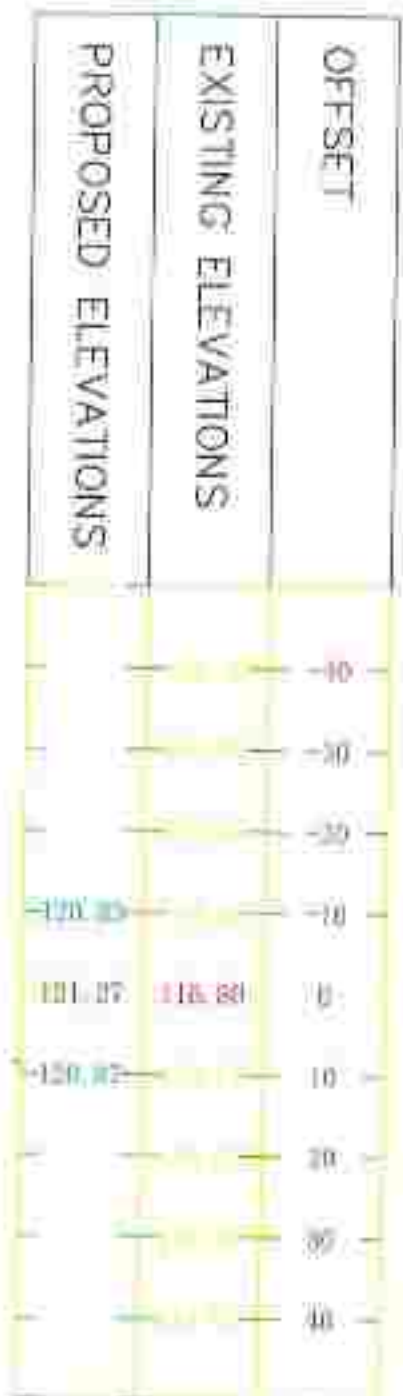
10/10/2017
10/10/2017



672+770.00

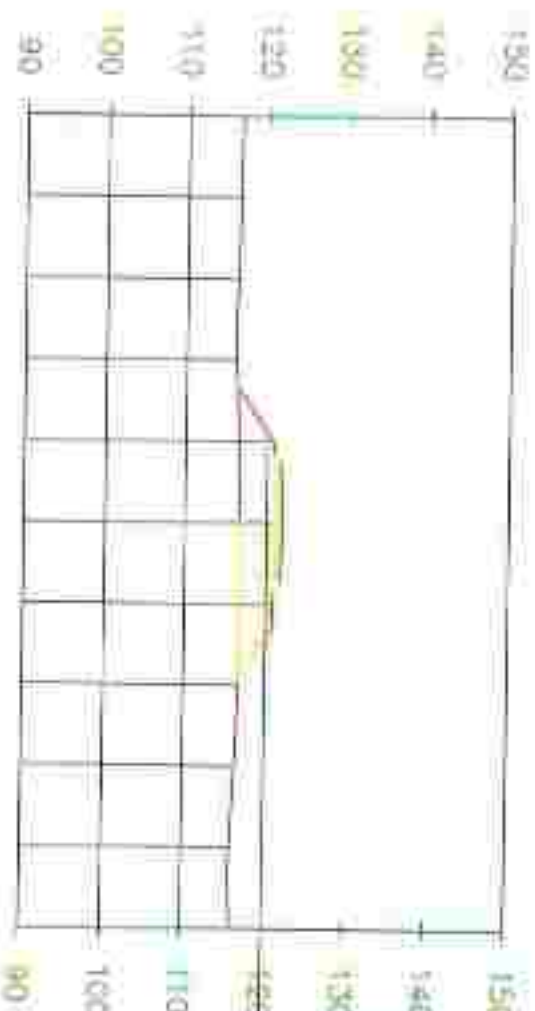


Total Volume at Station 672+770.00		
Cut Area	0.00	
Fill Area	112.27	
Cut Vol	0.00	
Fill Vol	1100.50	
Curr. Cut Vol	0.00	
Curr. Fill Vol	73911.73	
Net Vol	-73911.73	

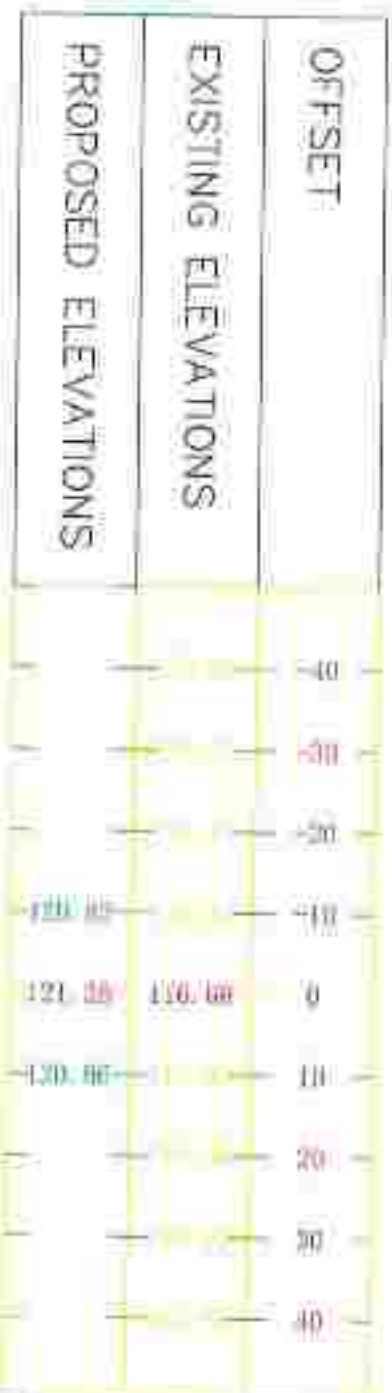
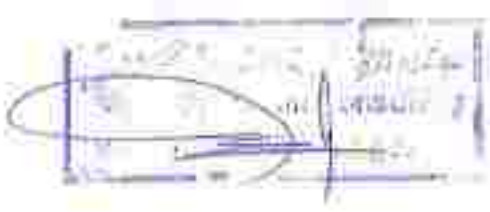


مراجعة المهندس
H.M. El-Sayed
10/10/2014

672+780.00



Total Volume at Station 672+780.00		
Cut Area	0.00	
Fill Area	60.56	
Cut Vol	0.00	
Fill Vol	678.17	
Curr. Cut Vol	0.00	
Curr. Fill Vol	74780.80	
Net Vol	-74780.80	



شركة جباري محمد
للمتعة الزراعية والبيوتات
مصر 101101
101101

CEL

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qom To Armm
Testing Date : 9/8/2023
Soil type : Middle Embankment
Location : ST From 672+080 to 672+100
Level : -4.5 M
Report No. : 01

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	672+090	1525	2.26	5.3	2.15	96.4	Comply

* Degree of compaction based on proctor test dated At

- * Max. dry density = 2.23 gm/cm³
- * At optimum moisture content = 5.6 %

Signature

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Engineering & Consulting
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Riyadh 11151, Saudi Arabia
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E: info@cel-saudi.com

IAS

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

Dear Gentleman,

Attached here with the delivered on 25 / 7 / 2023

This sample is representative for 5.000 M³

Materials test

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

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

Signature /


The signature is written over the CEL logo, which includes the text 'CONSULTING ENGINEERING & RESEARCH & LABORATORY LTD' and 'مستشارية هندسية وأبحاث ومختبر'.

Company Name : شركة جاد الرحمن
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 6724180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 25/7/2023
 Reporting Date : 29/6/2023
 Reporting No. : 01

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	96.9
37.5	1.5	89.7
25	1	82.8
19	¾	77.6
12.50	½	73.8
9.50	3/8	59.7
4.75	4	49.8
2.00	10	37.1
0.425	40	22.9

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 Signature: 

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CONSULTING ENGINEERING BUREAU & LABORATORY
مكتب استشارات الهندسة ومختبر

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qons To Acmant
Location : ST: 472+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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)	6.9

Signature

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مختبر استشارات الهندسة ومختبر
شركة عبد الرحمن
مكتب استشارات الهندسة ومختبر

IAS

CEL

شركة جيلاب للدراسات الهندسية والبيئية
Jilab Engineering Studies and Environmental
Engineering & Environmental Studies

Company Name : شركة جيلاب للدراسات
Project : Electric Express Train – HSR From Qong To Armanat
Location : ST= 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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

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

Signature



IAS
JILAB

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Arman
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 25/7/2023
 Reporting Date : 29/6/2023
 Reporting No. : 01

Soil Classification

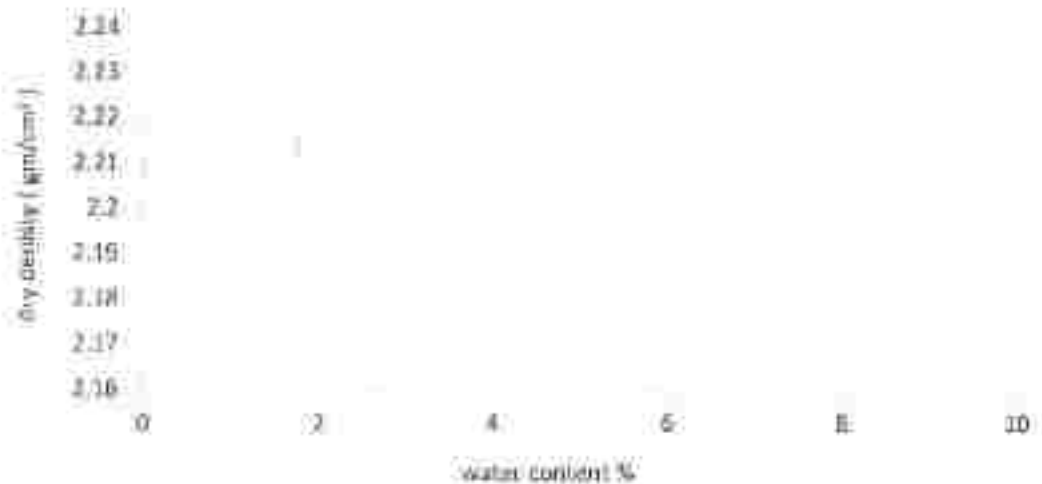
TEST	Results (%)	Limits according Projects Specs		
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10).	37.1	Max 50 %	—	—
0.425 mm (No. 40).	22.9	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	6.9	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

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

Signature

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6396723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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



- * Max dry density (gm/cm³) : 2.23
- * Optimum moisture content % : 5.8

Signature



Company Name : شركة عواد الرضن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 R=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.33
1.27	0.050	1.62
1.91	0.075	2.74
2.54	0.100	3.91
3.18	0.125	5.02
3.81	0.150	6.09
4.45	0.175	7.56
5.08	0.200	9.23
6.35	0.250	14.50

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	56.6 %
	6.90	3.91	

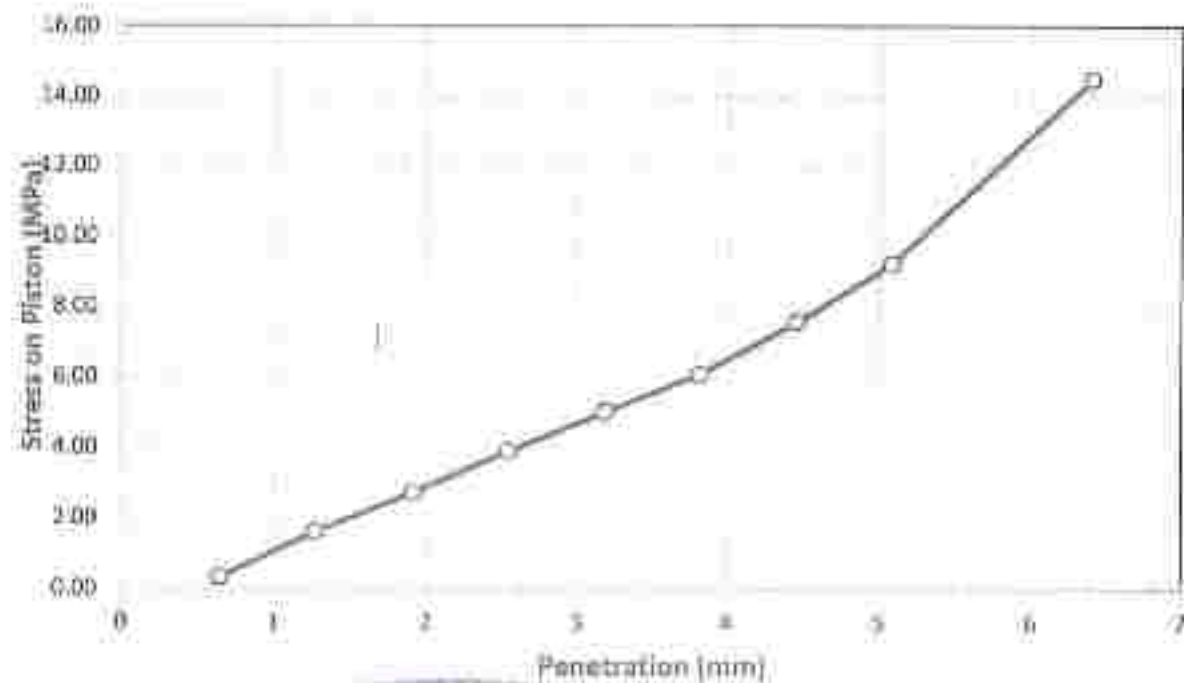
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of $\sim 2.23 \text{ (gm/cm}^3\text{)}$
At = 5.8 % optimum water content.
 - 3- Surcharge load = 50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 25/7/2023
Reporting Date : 29/6/2023
Reporting No. : 01

Load Penetration Curve of CBR Test ASTM D-1883



Signature

CEL
Signature
Date: 29/6/2023

Company Name : شركة جهاد الرحمن
 Project : Electric Express Train – HSR From Qous To Arman
 Testing Date : 9/8/2023
 Soil type : Middle Embankment
 Location : ST From 672+100 to 672+140
 Level : - 5.0 M
 Report No. : 02

Compaction test by using Sand – Cone Test Method
ASTM D- 1598

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+120	1544	2.27	5	2.17	97.1	Comply

* Degree of compaction based on proctor test dated A1

- * Max. dry density = 2.23 gm/cm³
- * At optimum moisture content = 5.8 %

Signature: 

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 9/8/2023
Soil type : Middle Embankment
Location : ST From 672+140 to 672+180
Level : - 4.3 M
Report No. : 03

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	672+160	1514	2.29	5.3	2.18	97.6	Comply

* Degree of compaction based on proctor test dated At

- * Max. dry density = $2.23 \text{ gm}/\text{cm}^3$
- * At optimum moisture content = 5.8 %

Signature: 
Testing Engineer

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Armanat
 Testing Date : 14/8/2023
 Soil type : طبقة استخال
 Location : ST From 672+100 To 672+140
 Level : +4.5 M
 Report No. : 06

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+110	1497	2.28	5.8	2.15	96.5%	Comply
2	672+130	1498	2.28	5.8	2.14	95.8%	Comply

* Degree of compaction based on proctor test dated A/

* Max. dry density = 2.23 gm/cm³

* At optimum moisture content = 5.5 %

Signature /

Signature /
 Signature /
 Signature /

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 14/8/2023
Soil type : طبقة امتداد
Location : ST From 672+060 To 672+080
Level : - 5 M
Report No. : 05

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	672+070	1470	2.28	5.8	2.15	96.5%	Comply

* Degree of compaction based on proctor test dated At

- * Max. dry density = 2.23 gm/cm³
- * At optimum moisture content = 5.8 %

Signature /

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qons To Arman
Testing Date : 13/8/2023
Soil type : طينة استبدال
Location : ST From 672+000 To 672+060
Level : - 4.5 M
Report No. : 04

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	672+020	1372	2.26	5.3	2.15	96.2%	Comply
2	672+040	1385	2.31	5.8	2.18	97.9%	Comply

* Degree of compaction based on proctor test dated At

- * Max. dry density = 2.23 gm/cm³
- * At optimum moisture content = 5.8 %

Signature / 

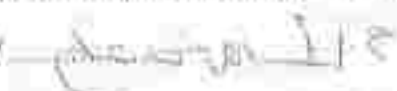
Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 16/8/2023
Soil type : طينة استحال
Location : ST From 672+060 To 672+080
Level : - 4.5 M
Report No. : 07

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	672+090	1408	2.32	5.8	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 = 5.8 %

Signature / 

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 24/8/2023
Soil type : Middle Embankment
Location : ST From 672+020 To 672+180
Level : -4 M
Report No. : 08

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	672+050	1807	2.24	5.3	2.12	95.7%	Comply
2	672+100	1605	2.28	5.5	2.16	97.3%	Comply
3	672+150	1635	2.25	5.8	2.13	95.8%	Comply

Degree of compaction based on proctor test dated At

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

Signature /

(مختبر عبد الرحمن)
مختبر عبد الرحمن
مختبر عبد الرحمن
مختبر عبد الرحمن

CELEBUREAU
General Office
P.O. Box 32569, Cairo

IAS
ACCREDITED

Date: 24/8/2023
Page: 08 of 08

Company Name : شركة عياد الرحمن
Project : Electric Express Train – HSR From Qons To Arman
Testing Date : 05/09/2023
Soil type : Lower Embankment
Location : S/T From 671+780 To 971+820
Level : - 5.5 M
Report No. : 14

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	671+830	1427	2.29	5.3	2.18	98.0%	Comply

Degree of compaction based on proctor test dated At

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

Signature /





Consulting Engineering Bureau & Laboratories

مكتب استشارات الهندسية

مشاريع ومخبرات الجيوتقنية

Company : شركة جيار جروب للمشاريع والاستشارات

Project : Electric Express Train - Sector (6) - Gous to Arment
Subject : Determining the deformation and strength characteristics of soil by the plate loading test according specifications DIN 18134:2012-04 and project requirements
Test Location : station 571+700 to 571+820
Station : 571+800
Level : -5.5
Test Date : 5/9/2023
Report Date : 5/9/2023
Type of soil : Lower Embankment
Report No. : 03

Dear Gentlemen,

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

Apparatus

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm for measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Oil indicator measuring device with scale capacity 700 Bar (Enverbar)
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 600 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 600 mm loading plate, the limit values are 2.5 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



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 : Lower Embankment
- Job requirement : $E_{v2} > 300 \text{ kg/cm}^2 (30 \text{ Mpa})$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
• Weather condition	Sunny
- Plate Diameter (mm)	300
• date of measurement	05/08/2023
• 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		First Cycle	Second Cycle	E_{v2} / E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	671+780	671+820	52	110	2.11

Signature /

[Handwritten Signature]

Company Name : شركة عبد الرحمن للتجارة والمقاولات
Project : Electric Express Train - Section (B) Oases to Aswan
Test Date : 06/09/2023
report date : 06/09/2023
Location : Station (87.1+900)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.00	19.00	0.00	19.00	0.00	0.00
1	0.63	19.60	0.20	19.73	0.27	0.23
2	1.26	19.60	0.40	19.51	0.49	0.44
3	2.50	19.60	0.80	19.34	0.86	0.83
4	3.33	19.30	0.80	19.20	0.80	0.80
5	4.17	19.00	1.00	19.12	0.88	0.94
6	5.00	18.80	1.20	18.96	1.04	1.12

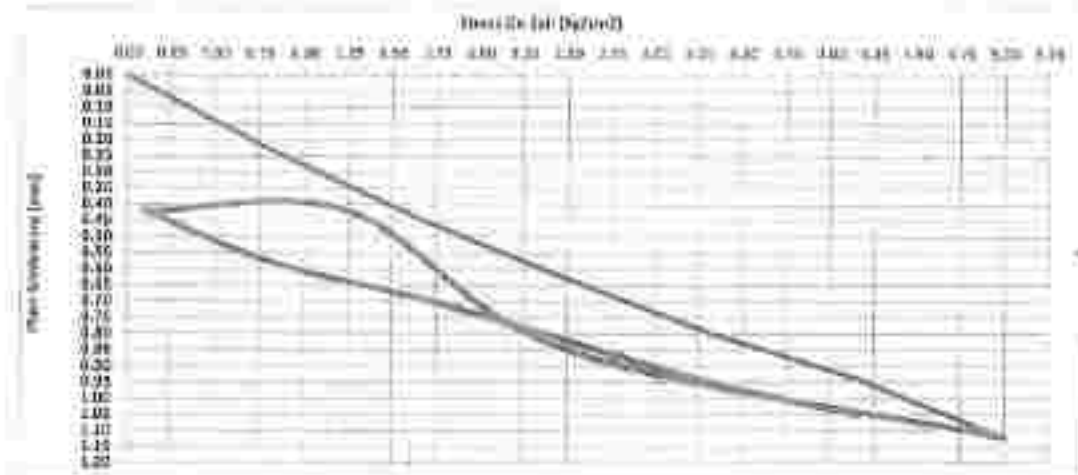
Unloading Stage (1)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
1	2.50	18.90	1.10	18.03	0.96	1.03
2	1.25	19.05	0.98	19.25	0.76	0.85
3	0.100	19.55	0.48	19.50	0.40	0.42

Loading Stage (2)

Loading	Stress	Dial 1	Settlement	Dial 2	Settlement	Average
	Kg/cm ²		mm		mm	
0	0.83	19.45	0.55	19.40	0.50	0.56
1	1.66	19.32	0.88	19.31	0.69	0.69
2	2.50	19.18	0.92	19.07	0.83	0.82
3	3.33	19.08	0.92	19.03	0.87	0.95
4	4.17	18.96	1.04	18.95	1.06	1.05





Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	886	1172.8	1766.3	2359.8	2946.1	3533
Stress (Kg/cm²)	0.02	0.82	1.65	2.50	3.33	4.17	5.00
Settlement (mm)	0.02	0.23	0.44	0.63	0.83	0.94	1.12

Unloading (T)	1	2	3	4
Stage (Kg)	3533	1766	884	0
Stress (Kg/cm²)	5.00	2.50	1.25	0.00
Settlement (mm)	1.12	0.88	0.63	0.42

D (mm) = 300	B1 (mm) = 0.40	Stress = 0.82	ΔS = 0.62
E ₁ (kg/cm²) = 10.75 D² ΔS / 0.8	82		

$$E_0/E_1 = 2.1$$

Loading (T)	0	1	2	3	4	5
Stage (Kg)	0	886	1172.8	1766.3	2359.8	2946.1
Stress (Kg/cm²)	0.02	0.82	1.65	2.50	3.33	4.17
Settlement (mm)	0.42	0.58	0.69	0.82	0.95	1.06

D (mm) = 600	Δ1 (mm) = 0.42	Δ2 (mm) = 0.81	ΔS = 0.40
E ₂ (kg/cm²) = 10.75 D² ΔS / 0.8	110		

E₁ = Modulus of subgrade during the loading stage

ΔS = Modulus of subgrade during the Resisting stage

D = Plate Diameter (mm)

ΔS = The difference between E₁ and E₂ from the maximum loading point (kg/cm²)

ΔS = Difference in settlement corresponding to 0.2 and 1.2 from the maximum loading point



Company Name : شركة عباد الرحمن
 Project : Electric Express Train – HSR From Qous To Arment
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 17/8/2023
 Reporting Date : 21/8/2023
 Reporting No. : 01-2

RESULTS OF SIEVE ANALYSIS According to ASTM D-422

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	90.7
25	1	84.3
19	¾	78.4
12.50	½	74.3
9.50	3/8	60.5
4.75	4	52.4
2.00	10	39.3
0.425	40	24.2

Signature / 

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qona To Armanat
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 17/8/2023
 Reporting Date : 21/8/2023
 Reporting No. : 01-2

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ M (No.200)	7.8

Signature 


Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Armat
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 17/8/2023
 Reporting Date : 21/8/2023
 Reporting No. : 01-2

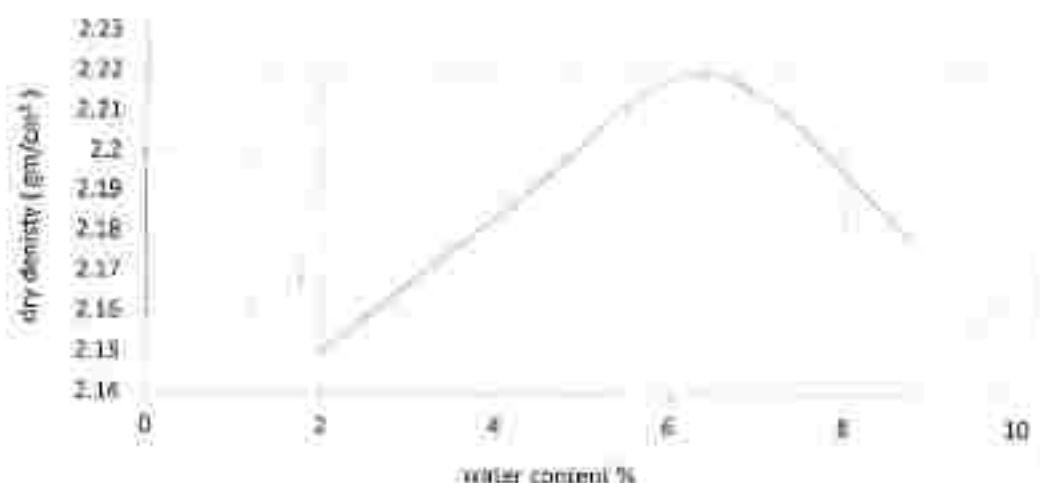
**Results of liquid limit and plasticity index
 of soils according to ASTM D-4318**

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

Signature: 

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 17/8/2023
Reporting Date : 21/8/2023
Reporting No. : 01-2

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



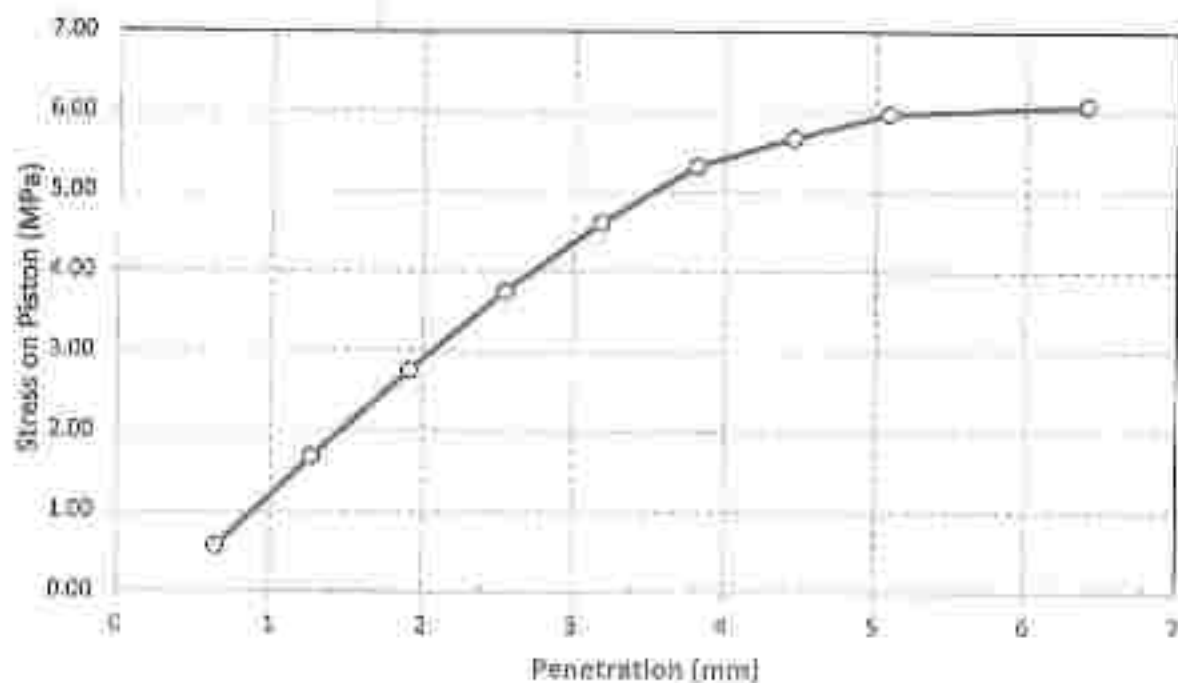
- Max dry density (gm/cm³) : 2.22
- Optimum moisture content % : 6.4

Signature / 



Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Armanat
 Location : ST: 672+180 E=32.7745621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 17/8/2023
 Reporting Date : 21/8/2023
 Reporting No. : 01-2

Load Penetration Curve of CBR Test
ASTM D-1883



Signature : 

Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qous To Armanat
 Testing Date : 05/09/2023
 Soil type : Lower Embankment
 Location : ST From 671+820 To 971+840
 Level : - 6 M
 Report No. : 13

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	671+830	1489	2.26	5.5	2.15	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

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arment
Testing Date : 14/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+880
Level : -3 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	691+800	1412	2.31	6.4	2.17	98.6%	Comply
2	691+860	1468	2.25	6	2.12	96.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.20 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



PROJECT REPORT CIVIL ENGINEERING SOIL MECHANICS

Chapter/Topic : Soil Test Result
 Project : Building Research Centre - Soil from Ground Investigation
 Testing Date : 04/09/2023
 Soil type : Loose Subsoilment
 Location : ST From 671+890 To 671+920
 Level : - 5.5 M
 Report No. : 11

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

Test #	Station	Test Hole Volume cm ³	Bulk Density g/cm ³	Moisture Content %	Dry Density (g/cm ³)	Degree of Compaction (%)	Acceptance
1	671+890	1472	2.28	5.3	2.18	97.4%	Comply

Degree of compaction based on proctor test data) At

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

Signature / _____ By _____

Company : شركة عبد الرحمن للتصميم والمقاولات

Project : Electric Express Train - Sector (B) - Qous to Arment
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications O/N 18/34/2012-04 and project requirements
Test Location : station 671+860 to 671+820
Station : 671+800
Level : -5.5
Test Date : 4/9/2023
Report Date : 5/9/2023
Type of soil : Lower Embankment
Report No. : 01

Dear Gentlemen,

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

Apparatus

1. Loading plates consists of two plates with 600 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 600 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 600 mm loading plate, the limit values are 2.5 kg/cm^2
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, in 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



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 : Lower Embankment
- Job requirement : $E_{v1} > 300 \text{ kg/cm}^2$ (30 Mpa)

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	08/09/2023
- 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		First Cycle	Second Cycle	E_{v1}/E_{v2} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	571+860	571+920	72	110	1.52

Signature /

Company Name : شركة عم.ك.الزمن القوية والمقاومة
Project : Electric Express T/pt - Section (2) Abad (1) - 2000
Test Date : 04/08/2023
report date : 06/08/2023
Location : Station 871+880 to 871+820
Test No. : 01

Nonrepetitive Static Plate Load Tests of Soil DIN 15134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.65	19.30	0.18	19.85	0.15	0.16
2	1.66	19.70	0.30	19.70	0.27	0.28
3	2.50	19.60	0.40	19.60	0.40	0.40
4	3.33	19.43	0.57	19.48	0.52	0.54
5	4.17	19.34	0.69	19.37	0.63	0.65
6	5.00	19.18	0.81	19.24	0.70	0.77

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.18	0.81	19.24	0.70	0.77
2	1.25	19.27	0.73	19.31	0.69	0.69
3	0.100	19.35	0.61	19.45	0.55	0.57

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.56	0.44	19.62	0.4	0.40
1	1.58	19.42	0.68	19.47	0.5	0.54
2	2.50	19.28	0.72	19.33	0.67	0.68
3	3.33	19.18	0.82	19.20	0.80	0.80
4	4.17	19.04	0.96	19.07	0.90	0.92



Company Name:

Project:

Test Date:

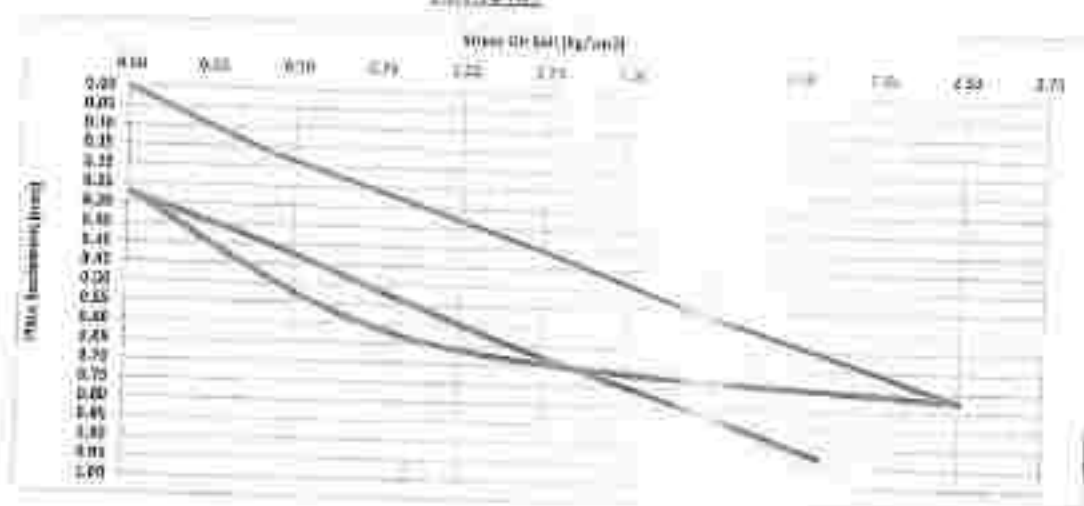
Report Date:

Location:

Test No.:

شركة جود الراسم القمار والسفر
Station: Exchange Field - Section (B) Grid No. 10000
T: 000/00000
P: 000/0000
Station: 000000 to 000000
00

Horizontal Static Plate Load Test of Soil DIN 15134



Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	888	1172.8	1708.3	2282.6	2646.1	3021
Stress (Kg/cm ²)	0.00	0.03	1.56	2.60	3.35	4.17	5.01
Settlement (mm)	0.00	0.16	0.28	0.40	0.54	0.65	0.77

Q (mm) = 300	Q1 (mm) = 8.28	Q2 (mm) = 8.28	Q3 = 6.5 = 0.30
Q4 (kg/cm ²) = 0.75	Q5 = 7.2		

Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	888	1172.8	1708.3	2282.6	2646.1	3021
Stress (Kg/cm ²)	0.00	0.33	1.56	2.60	3.35	4.17	5.01
Settlement (mm)	0.27	0.40	0.54	0.68	0.80	0.90	1.00

Q (mm) = 900	Q1 (mm) = 0.42	Q2 (mm) = 0.01	Q3 = 0.40
Q4 (kg/cm ²) = 0.75	Q5 = 1.0		

Unloading (T)	1	2	3	4
Stage (Kg)	3021	1708.3	888	71
Stress (Kg/cm ²)	5.01	2.60	1.25	0.10
Settlement (mm)	0.69	0.57	0.27	0.27

$$E_{v2}/E_{v1} = 0.8$$

E_{v1} = Modulus of deformation during the loading stage.

E_{v2} = Modulus of deformation during the unloading stage.

Q = Plate diameter (mm)

Q₁ = The difference between 0.1 and 0.2 from the maximum loading (stress) (mm)

Q₂ = Difference in settlement corresponding to 0.1 and 0.2 from the maximum loading (mm)



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 04/09/2023
Soil type : Lower Embankment
Location : ST From 671+920 To 971+940
Level : - 6 M
Report No. : 10

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	671+930	1272	2.26	5.5	2.15	96.7%	Comply

Degree of compaction based on proctor test dated At

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

Signature /



Company : شركة مفاعيل الهندسة والاستشارات

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 15134:2012-04 and project requirements
Test Location : station 671+860 to 671+900
Station : 671+970
Level : -5.5
Test Date : 4/9/2023
Report Date : 5/9/2023
Type of soil : Lower Embankment
Report No. : 02

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 600 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 (Enerpac)
7. Reaction loading system by roller compactor with weight approximately 15 ton
8. Calibration certificates are attached

Test Procedure

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 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 600 mm loading plate, the limit values are $\pm 5 \text{ kg/cm}^2$
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 0.01 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Lower Embankment
- Job requirement : $E_v > 300 \text{ kg/cm}^2$ (30 MPa)

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- 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		First Cycle	Second Cycle	E_v / E_v Ratio
	From	To	E_v (MPa)	E_v (MPa)	
1	571+780	571+820	69.1	62.0	0.89

Signature /



Consulting Engineering Bureau & Laboratories

مكتب محامل الاستكشافات الهندسية
مشروعات محافظات الوجه القبلي

Company Name : شركة عبد الرحمن للتصميم والمقاولات
Project : Electric Square Tally - Section (M) Giza to Airport
Test Date : 06/09/2023
report date : 06/09/2023
Location : station (871+970)
Test No. : 03

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	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	19.75	0.25	19.79	0.21	0.23
2	1.66	19.55	0.45	19.60	0.40	0.42
3	2.50	19.30	0.70	19.41	0.59	0.65
4	3.33	19.10	0.90	19.18	0.81	0.86
5	4.17	18.85	1.15	19.00	1.00	1.05
6	5.00	18.51	1.39	18.88	1.12	1.26

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.70	1.30	18.95	1.05	1.18
2	1.25	18.95	1.05	19.05	0.95	1.00
3	0.100	19.58	0.42	19.40	0.60	0.51

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	19.32	0.68	19.16	0.81	0.74
1	1.66	19.10	0.90	18.98	1.02	0.96
2	2.50	18.82	1.12	18.78	1.24	1.17
3	3.33	18.67	1.33	18.50	1.50	1.42
4	4.17	18.49	1.61	18.32	1.66	1.80

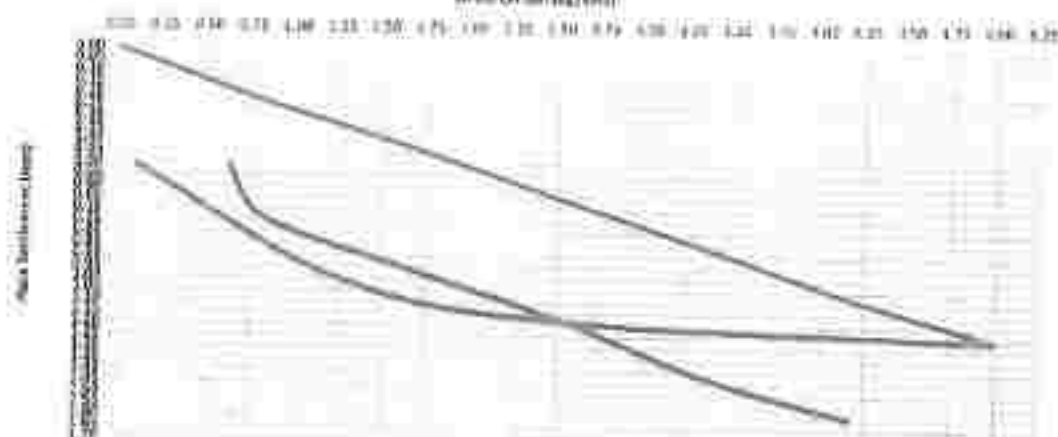


Company Name
Project
Test Date
Report No.
Location
Test No.

شركة ش.ع.م. الهندسية والبيئية
Electrical Systems (Civil, Structural & Mechanical)
01/06/2023
08004/2023
Boklos ST (4512)
03

Nonresonant Static Plate Load Tests of Soils DON 18134

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Loading (1)	0	1	2	3	4	5	6
Stage (Kg)	0	586	1172.8	1765.3	2352.8	2940.1	3523
Stress (Kg/cm ²)	0.00	0.03	0.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.42	0.63	0.86	1.08	1.25

Q (mm) = 300	Stress = 6.25	Stress = 6.25	SE = 0.51
E ₁ (kg/cm ²) = 25.78	SE = 60.1		

Loading (2)	0	1	2	3	4	5
Stage (Kg)	0	486	1172.8	1765.3	2352.8	2940.1
Stress (Kg/cm ²)	0.00	0.03	0.66	2.50	3.33	4.17
Settlement (mm)	0.01	0.74	0.66	1.17	1.42	1.60

Q (mm) = 300	Stress = 6.25	Stress = 1.48	SE = 0.83
E ₂ (kg/cm ²) = 25.78	SE = 82.8		

Unloading (1)	1	2	3	4
Stage (Kg)	3523	1765.3	884	41
Stress (Kg/cm ²)	5.00	2.50	1.25	0.10
Settlement (mm)	1.26	1.18	1.00	0.51

$$E_2/E_1 = 0.98$$

E₁ = Modulus of deformation during the loading stage.

E₂ = Modulus of deformation during the unloading stage.

S = Plate diameter (mm).

Q₁ = The difference between 0.5 and 0.7 from the maximum loading (mm) (kg/cm²)

Q₂ = Difference in settlements corresponding to 0.5 and 0.7 from the maximum loading (mm)



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 04/09/2023
Soil type : Lower Embankment
Location : ST From 671+980 To 972+000
Level : - 5 M
Report No. : 12

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	671+890	1553	2.22	5	2.12	95.3%	Comply

Degree of compaction based on proctor test dated At

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

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qom To Armanat
Testing Date : 10/09/2023
Soil type : Lower Embankment
Location : ST From 672+820 To 672+840
Level : - 5.5 M
Report No. : 16

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	672+830	1519	2.27	5.5	2.15	97.0%	Comply

Degree of compaction based on proctor test dated At

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

Signature /



Company : شركة عبد الرحمن قنبل وأمبارك

Project : Electric Express Train – Sector (5) – Ques 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 671+820 to 671+840
Station : 671+830
Level : +5.5
Test Date : 10/9/2023
Report Date : 10/9/2023
Type of soil : Lower Embankment
Report No. : 02

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 600 mm and 300 mm diameter
2. The thickness of plates 20 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel straightedges with magnetic supports to fixed the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 100 Bar (Enertec)
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 600 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 600 mm loading plate, the first values are 2.5 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



Report

1. Evaluation and representation of results
2. Load Settlement curves
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 : Lower Embankment
- Job requirement : $E_v > 300 \text{ kg/cm}^2$ (30 Mpa)

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	10/09/2023
- 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		First Cycle	Second Cycle	E_{v1}/E_{v2} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	671+820	671+840	90.2	101.1	1.78

Signature / 

Company Name : شركة عبد الرحمن للتجارة والمقاولات
Project : Egitile Express Train - Section (B) Giza to Arment
Test Date : 10/09/2023
report date : 10/09/2023
Location : station (B714830)
Test No. : 02

Nonrepetitive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.00	19.05	0.00	19.00	0.00	0.00
1	0.63	19.00	0.10	19.45	0.15	0.13
2	1.66	19.70	0.30	19.60	0.40	0.35
3	2.50	19.55	0.45	19.40	0.60	0.53
4	3.33	19.30	0.70	19.19	0.81	0.75
5	4.17	19.29	0.91	19.00	1.00	0.96
6	5.00	18.89	1.11	18.82	1.18	1.15

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	19.20	0.90	19.06	0.94	0.92
2	1.25	19.31	0.65	19.27	0.73	0.71
3	0.100	18.55	0.41	19.66	0.44	0.43

Loading Stage (2)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.63	19.50	0.60	19.30	0.70	0.60
1	1.66	19.47	0.83	19.71	0.78	0.86
2	2.50	19.35	0.85	19.18	0.82	0.73
3	3.33	19.23	0.77	18.98	1.02	0.90
4	4.17	19.11	0.89	18.67	1.13	1.01

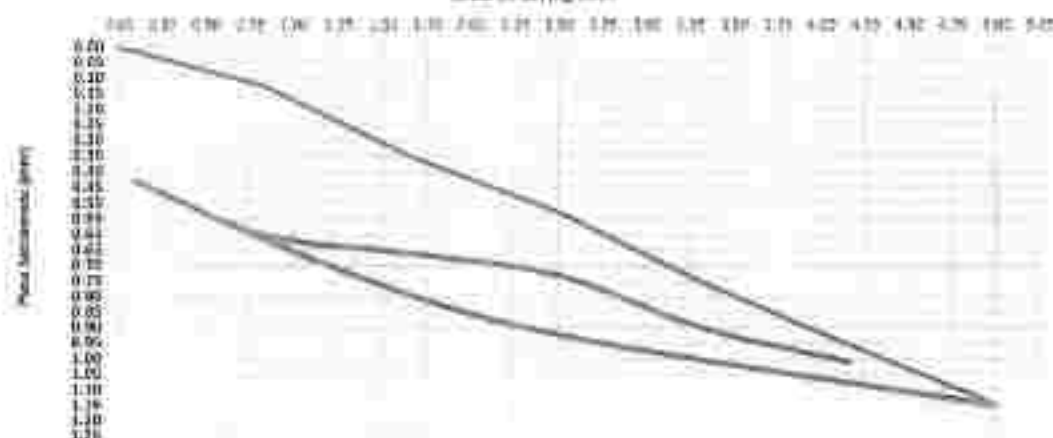


Client/Project Name
Project
Test Date
Report Date
Location
Test No.

تربة رملية (رملي) - Station 101
Building Expansion - Station 101
09/09/2022
13/09/2022
Station 101
01

Respective Static Plate Load Tests of Soils DIN 18136

Static Plate Load Test



Loading (t)	0	1	2	3	4	5	6
Stage (kg)	0	886	1772.8	2659.3	3545.8	4432.1	5318.1
Stress (Kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.13	0.05	0.03	0.75	0.98	1.10

$D \text{ (mm)} = 300$	$S_1 \text{ (mm)} = 0.13$	$S_2 \text{ (mm)} = 0.05$	$\Delta S = 0.49$
$E_{v1} \text{ (kg/cm}^2\text{)} = 0.75 \cdot D^2 \cdot \Delta S / S_1^2$	86.3		

Loading (t)	0	1	2	3	4	5
Stage (Kg)	0	886	1772.8	2659.3	3545.8	4432.1
Stress (Kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.43	0.00	0.05	0.73	0.90	1.01

Unloading (t)	1	2	3	4
Stage (kg)	3539	1765	884	71
Stress (Kg/cm ²)	5.00	2.500	1.25	0.10
Settlement (mm)	1.18	0.52	0.71	0.40

$E_{v2}/E_{v1} =$	1.78
-------------------	------

$D \text{ (mm)} = 300$	$S_1 \text{ (mm)} = 0.43$	$S_2 \text{ (mm)} = 0.05$	$\Delta S = 0.37$
$E_{v2} \text{ (kg/cm}^2\text{)} = 0.75 \cdot D^2 \cdot \Delta S / S_2^2$	181.1		

E_{v1} = modulus of deformation during the loading stage
 E_{v2} = modulus of deformation during the unloading stage
 D = Plate diameter (mm)

ΔS = The difference between S_1 and S_2 from the maximum loading (mm) (mm)

ΔS = Difference in settlements corresponding to S_1 and S_2 from the maximum loading (mm)



Company Name : شركة عباد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 09/09/2023
Soil type : Lower Embankment
Location : ST From 671+920 To 671+940
Level : - 5.5 M
Report No. : 15

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	671+930	1469	2.22	5.3	2.11	95.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / 

Company: شركة محاسن الهندسة والمشاريع

Project : Electric Express Train – Sector (5) – Qout 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 671+820 to 671+840
Station : 671+830
Level : -5.5
Test Date : 9/9/2023
Report Date : 10/9/2023
Type of soil : Lower Embankment
Report No. : 91

Dear Gentleman,

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

Apparatus

1. Loading plates consists of two plates with 600 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 Procedures

1. Clean the ground on test area to the required level with undisturbed soil
2. Install loading plates 600 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 600 mm loading plate, the limit values are 2.5 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 (2%) loading cycle shall be carried out, in which, however, the load is to be increased only to the penultimate stage of the first cycle (so that the full load is not reached).
10. At each stage, the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Lower Embankment
- Job requirement : $E_{v2} > 300 \text{ kg/cm}^2 (30 \text{ Mpa})$

Item	Descriptions
- Type of bedding material below the plate	Natural Soil
- Weather condition	Sunny
- Plate Diameter (mm)	300
- date of measurement	09/09/2023
- 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		First Cycle	Second Cycle	E_{v2}/E_{v1} Ratio
	From	To	E_{v1} (MPa)	E_{v2} (MPa)	
1	67+920	67+940	88.7	61.5	0.69

Signature /



Company Name : شركة محامل الاستقصاءات الهندسية
Project : Electric Express Train - (Section 18) Giza to Asmat
Test Date : 09/09/2022
report date : 10/09/2022
Location : station (671+320)
Test No. : 01

Nonrepertive Static Plate Load Tests of Soils DIN 18134

Data sheet

Loading Stage (1)

Loading	Stress Kg/cm ²	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	18.79	0.22	19.77	0.23	0.23
2	1.66	18.58	0.42	19.58	0.48	0.44
3	2.50	18.30	0.70	19.35	0.81	0.65
4	3.33	18.13	0.88	19.17	0.83	0.85
5	4.17	18.95	1.05	18.99	1.01	1.03
6	5.00	18.77	1.23	18.80	1.29	1.22

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
1	2.50	18.79	1.21	18.81	1.19	1.20
2	1.25	18.90	1.10	18.95	1.05	1.08
3	0.100	19.20	0.80	19.15	0.85	0.83

Loading Stage (2)

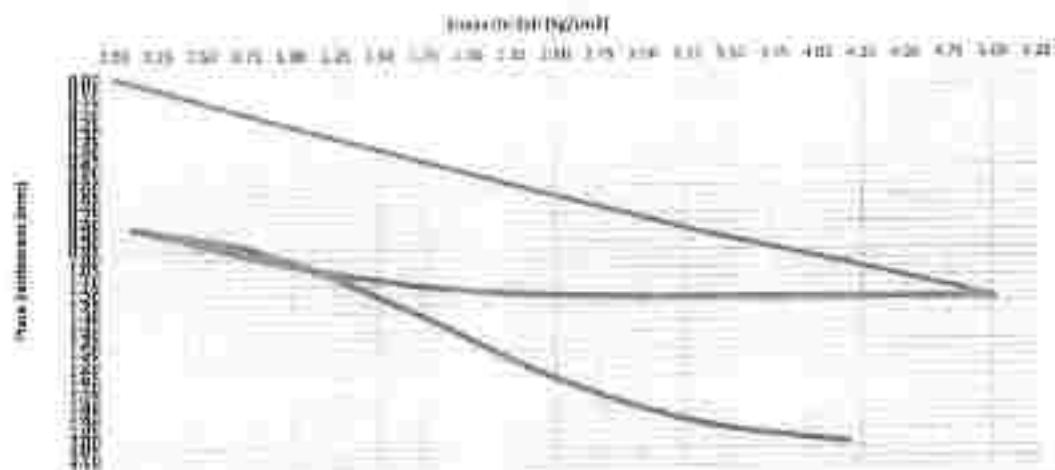
Loading	Stress Kg/cm ²	Dial 1	Settlement mm	Dial 2	Settlement mm	Average
0	0.83	18.99	1.01	19.10	0.90	0.96
1	1.66	18.75	1.25	19.30	1.30	1.28
2	2.50	18.51	1.48	19.18	1.62	1.68
3	3.33	18.29	1.71	17.90	2.10	1.91
4	4.17	18.15	1.95	17.82	2.18	2.02



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

Weight Sample Test - Results (No. 200 to 2100)
05/06/2022
KMS/2022
Station 97+888
101

Normal/Free Static Plate Load Tests of Soils DIN 58124



Loading (1)	0	1	2	3	4	5	6
Stage(Kg)	0	888	1172.8	1706.3	2252.8	2948.1	3833
Stress (Kg/cm²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.23	0.44	0.63	0.88	1.03	1.22

$D_1(\text{mm}) = 300$	$S_1(\text{mm}) = 0.48$	$S_2(\text{mm}) = 1.88$	$\Delta S = 0.48$
$E_v(\text{kg/cm}^2) = (0.75 \cdot D^2) / (S_2 - S_1)$	88.7		

Loading (2)	0	1	2	3	4	5
Stage(Kg)	0	888	1172.8	1706.3	2252.8	2948.1
Stress (Kg/cm²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.83	1.06	1.25	1.68	1.81	2.02

$D_1(\text{mm}) = 300$	$S_1(\text{mm}) = 1.71$	$S_2(\text{mm}) = 1.83$	$\Delta S = 0.71$
$E_v(\text{kg/cm}^2) = (0.75 \cdot D^2) / (S_2 - S_1)$	81.8		

Unloading (1)	1	2	3	4
Stage(Kg)	3833	1706	888	71
Stress (Kg/cm²)	5.00	2.50	1.25	0.10
Settlement (mm)	1.22	1.20	1.08	0.82

$E_v(E_v) =$	0.08
--------------	------

S_v = Modulus of settlement during the loading stage.

S_v = Modulus of settlement during the unloading stage.

D = Plate diameter (mm)

ΔS = The difference between S_2 and S_1 from the maximum loading (mm)

ΔS = Difference in settlement corresponding to S_2 and S_1 from the maximum loading (mm)



No. of Pages: 1
 Author: [Name]
 Institution: [Name]
 Type of article: [Name]
 Delivery Date: [Date]
 Reporting Date: [Date]
 Reporting No: [Number]

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)	74

Signature: [Signature]

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arment
Location : ST: 672+180 E=33.7745621 N= 25.6896723
Type of sample : Soil Embankment
Delivery Date : 03/09/2023
Reporting Date : 07/09/2023
Reporting No. : 01-3

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

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

Signature /

Soil Classification Report

Date: 05/05/2021
 Location: ST. Joseph (C-45, 14450 / 14450 / 14450)
 Type of Sample: Soil Subgrade
 Delivery Date: 05/05/2021
 Reporting Date: 07/05/2021
 Drawing No: 100

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10):	41.5	Max 50 %	-----	-----
0.425 mm (No. 40):	22.4	Max 30 %	Max 50 %	-----
0.075 mm (No. 200):	7.4	Max 15 %	Max 15 %	Max 15 %
Liquid Limit:		-----	-----	-----
Plasticity Index	1	Max 5 %	Max 5 %	Max 10 %

The test results are (in Conform) / (Not Conform) with specifications limits

Signature: / *[Signature]*

100
 100
 100



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.60
1.91	0.075	2.72
2.54	0.100	3.68
3.18	0.125	4.58
3.81	0.150	5.24
4.45	0.175	5.61
5.08	0.200	5.86
6.35	0.250	6.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	SL Value	Sample results	53.3 %
	6.90	3.68	

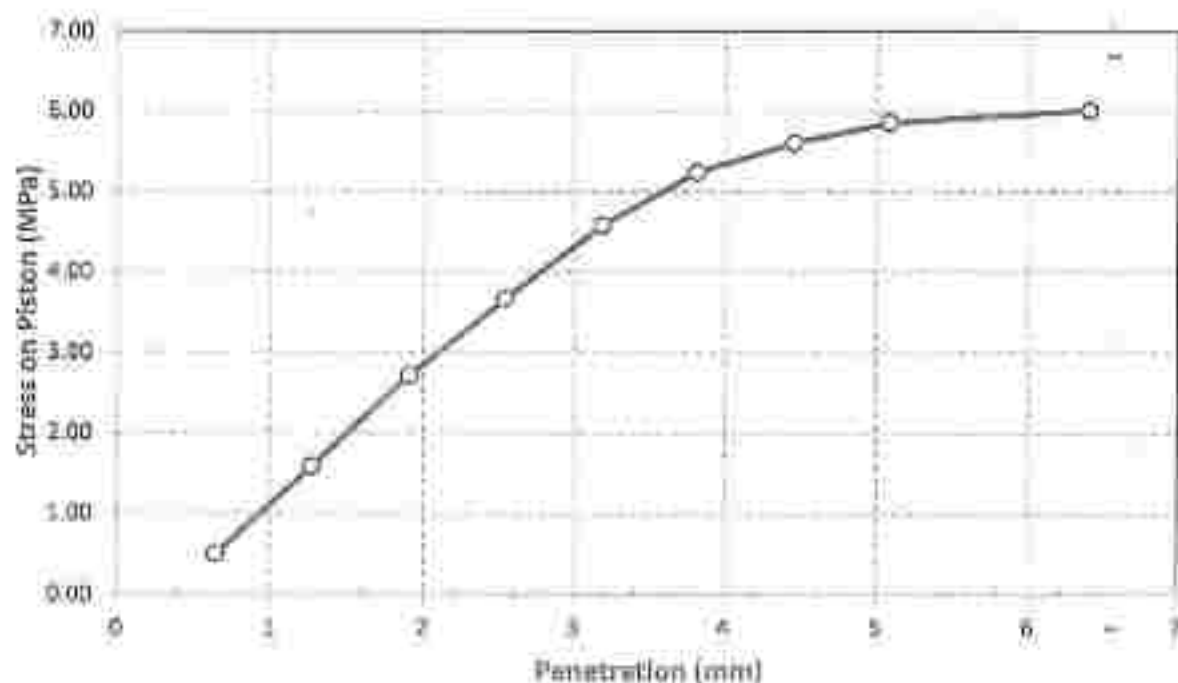
Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm/cm}^3\text{)}$
At = 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 / 

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-8

Load Penetration Curve of CBR Test
ASTM D-1883



Signature

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 18/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : -2 M
Report No. : 39

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	672+660	1579	2.26	6.4	2.12	96.0%	Comply
2	672+680	1576	2.30	5	2.17	98.2%	Comply
3	672+700	1325	2.25	6.4	2.12	95.9%	Comply
4	672+720	1306	2.30	5.8	2.17	98.3%	Comply
5	672+740	1470	2.23	5.5	2.11	95.7%	Comply
6	672+760	1369	2.32	5.6	2.20	99.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21gm/cm³
- At optimum moisture content = 5.8 %

Signature /



Cellular 2023 172051 2023 172051
172051 2023 172051
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172051 2023 172051
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172051 2023 172051

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 19/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+900
Level : -2.5 M
Report No. : 42

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	671+800	1323	2.26	6	2.13	96.3%	Comply
2	671+850	1328	2.26	6.4	2.13	96.2%	Comply
3	671+885	1417	2.31	6	2.18	98.5%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qass To Ararat
Testing Date : 21/10/2023
Soil type : Middle Embankment
Location : ST From 671+900 To 672+020
Level : -2.5 M
Report No. : 43

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	671+920	1564	2.24	5.5	2.12	95.9%	Comply
2	671+940	1516	2.28	5.6	2.15	97.5%	Comply
3	671+960	1439	2.25	6.4	2.11	95.6%	Comply
4	671+980	1461	2.26	5.8	2.13	96.6%	Comply
5	671+000	1508	2.27	5.6	2.15	97.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature : 
Engineer / 

1 - 2023/10/21
2 - 2023/10/21
3 - 2023/10/21



Company Name : شركة عبد الرحمن
Project : Electric Express Train -- HSR From Qous To Arbil
Location : ST: 572+180 E=32.774563 N=35.659672
Type of sample : Soil Embankment
Delivery Date : 3/10/2023
Reporting Date : 9/10/2023
Reporting No. : 03-9

Dear Gentleman,

Attached here with the delivered on 5 / 10 / 2023

This sample is representative for 5.000 M³

Materials test

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

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

Signature /

Company Name : Bangladesh Light
 Project : Electric Express Train - HSR From Quous To Armanit
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 5/10/2023
 Reporting Date : 9/10/2023
 Reporting No. : 01-9

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.9
37.5	1.5	94.7
25	1	88.6
19	¾	79.1
12.50	½	72.0
9.50	3/8	64.5
4.75	4	59.4
2.00	10	42.3
0.425	40	29.7

Signature/

01 06 41 00 00
 10/10/2023
 10/10/2023



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qana To Armanet
Location : ST: 672+180 D=12.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.5

Signature /



Company Name : شركة الجليل
 Project : Electric Express Train - HSR From Qom To Arman
 Location : ST: 672+180 E=32.7745631 N=35.6596723
 Type of sample : Soil Embankment
 Delivery Date : 5/10/2023
 Reporting Date : 9/10/2023
 Reporting No. : 01-9

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

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

Signature / /



Company Name : شركة عمار الرحمن
 Project : Electric Express Train - (ST: From Qom To Arman)
 Location : ST: 672+180 E=32.77MS621 N=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 5/10/2023
 Reporting Date : 9/10/2023
 Reporting No. : 01-9

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-d)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-d)
2.00 mm (No.10).	42.3	Max 50 %	—	—
0.425 mm (No. 40).	29.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.5	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity Index	0	Max 0 %	Max 6 %	Max 10 %

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

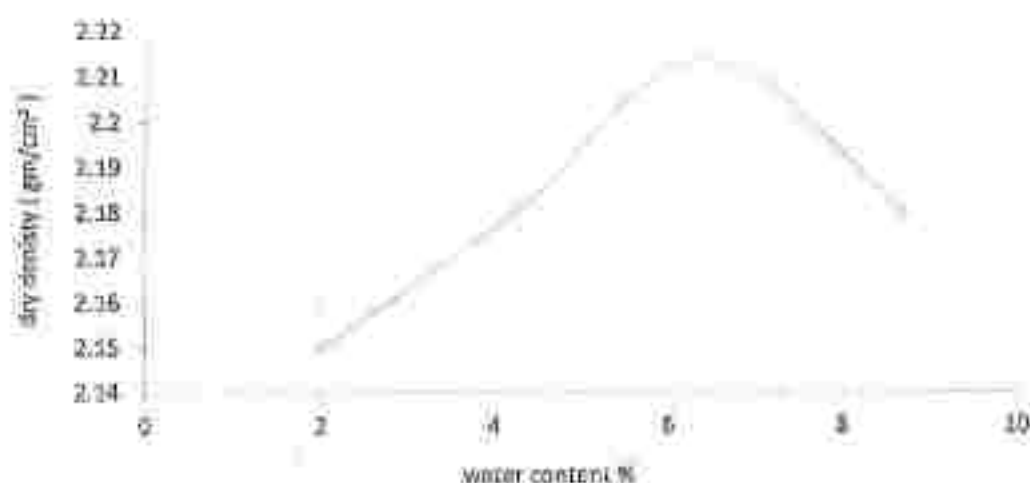
Signature /

Signature of the Client

Signature of the Engineer

Signature of the Lab

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

Max dry density (g/cm^3) 2.31

Optimum moisture content % 15.8

Signature / ... 





Consulting Engineering Experts & Laboratories
مستشارية ومختبرات الهندسة

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HST Train Qana To Asmant
Location : ST: 672+180 E=31.7748621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 5/10/2023
Reporting Date : 9/10/2023
Reporting No. : 01-9

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.65
1.91	0.075	2.76
2.54	0.100	3.80
3.18	0.125	4.64
3.81	0.150	5.33
4.45	0.175	5.68
5.08	0.200	5.86
6.35	0.250	6.02

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	45.1 %
	6.90	3.80	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of ≈ 2.21 (g/cm³).
At = 5.8 % optimum water content.
- 3- Surcharge load 4.50 kg.

⚠ CBR > 10 for middle and lower embankments according project spec page No. 16.

Signature / 

Stamp of the Laboratory

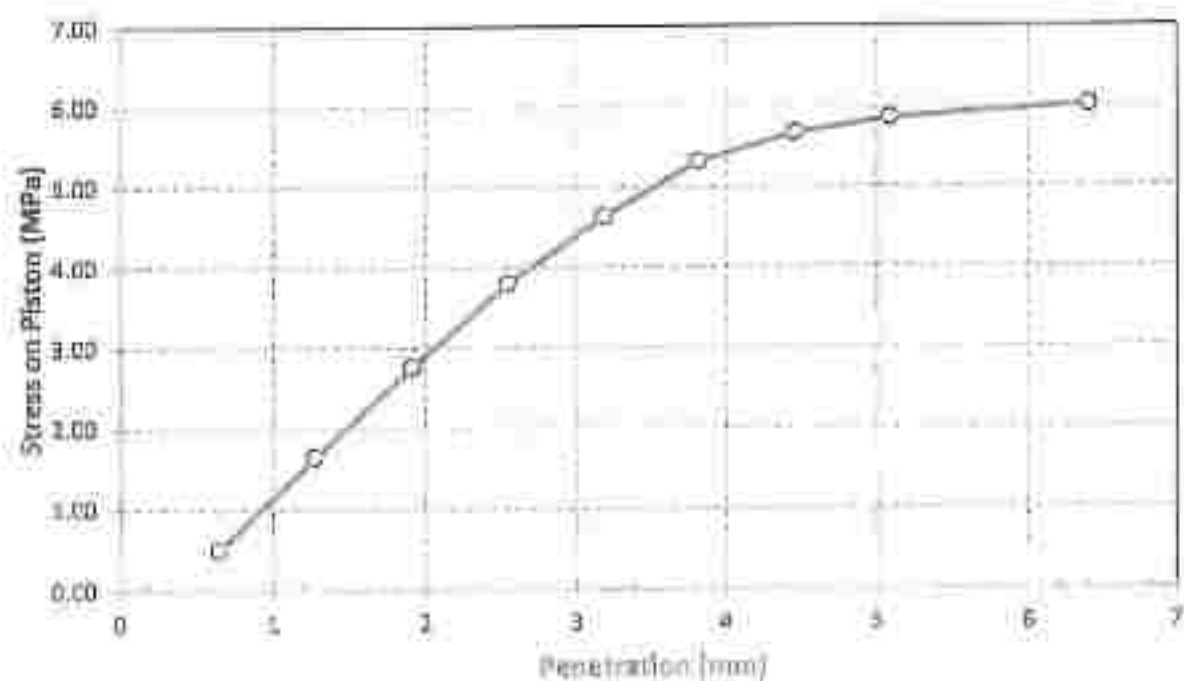
Stamp of the Engineer

Stamp of the Project



Company Name : شركة عبد الرحمن
 Project : Electric Express Train - HSR From Qouz To Ar-Raddi
 Location : ST: 673+180 R=32.7745623 M=25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 5/10/2023
 Reporting Date : 9/10/2023
 Reporting No. : 01-9

Load Penetration Curve of CBR Test ASTM D-1883



Signature

[Signature]

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 23/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : -1.75 M
Report No. : 45

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	672+680	1998	2.27	6	2.15	97.1%	Comply
2	672+700	1752	2.31	5.8	2.18	98.6%	Comply
3	672+760	1443	2.25	5.6	2.13	96.6%	Comply

Degree of compaction based on proctor test dated At

- * Max. dry density = 2.21 gm/cm³
- * At optimum moisture content = 5.8 %

Signature /

(Signature)
23/10/2023
23/10/2023

CEL
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مكتب دراسات واستشارات هندسية



Company Name : شركة م.ع.ل
Project : Electric Express Train - HSR From Qass To Ar Rass
Testing Date : 25/10/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+900
Level : - 2 M
Report No. : 47

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	671+800	1817	2.29	6.4	2.15	97.2%	Comply
2	671+820	1872	2.24	6	2.11	95.7%	Comply
3	671+840	1430	2.27	6.4	2.14	96.7%	Comply
4	671+860	1401	2.26	6.4	2.12	96.1%	Comply
5	671+880	1454	2.23	6	2.10	95.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

Signature /

10/10/2023

10/10/2023

10/10/2023

IAS
ACCREDITED

CEL

Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arment
Testing Date : 26/10/2023
Soil type : Middle Embankment
Location : ST. From 671+900 To 672+020
Level : - 2 M
Report No. : 48-1

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	671+920	1310	2.28	6.4	2.14	96.9%	Comply
2	671+950	1330	2.25	5.5	2.13	96.3%	Comply
3	671+970	1330	2.27	5.8	2.15	97.2%	Comply
4	672+000	1350	2.29	5.6	2.17	98.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



IAS
ACCREDITED

Company Name : VASUMAR 123
 Project : Blacke Express Trail - HSR From Gung To Ararat
 Testing Date : 29/03/2023
 Soil type : Middle Embankment
 Location : ST. From 672+020 till 672+180
 Level : 1-2 M
 Report No. : 48

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	672+060	1516	2.28	5.8	2.15	96.9%	Comply
2	672+100	1433	2.26	5.6	2.14	96.3%	Comply
3	672+140	1507	2.27	6.4	2.14	96.2%	Comply
4	672+160	1461	2.26	6	2.13	95.9%	Comply

Degree of compaction based on proctor test dated At

- * Max. dry density = 2.22 gm/cm³
- * At optimum moisture content = 5.8 %

Signature : _____



For and on behalf of
 VASUMAR 123
 (Sole Proprietor)



Signature : _____
 Date : _____



Soil Testing Laboratory
10000 100th Ave. N.E. Suite 100
Redmond, WA 98073

Project: 10000 100th Ave. N.E. Suite 100
Client: 10000 100th Ave. N.E. Suite 100
Address: 10000 100th Ave. N.E. Suite 100
Type of Sample: Soil Sample
Delivery Date: 11/01/2023
Reporting Date: 11/01/2023
Reporting To: 10000 100th Ave. N.E. Suite 100

Dear Gentleman:

Attached herewith has delivered on 11/01/2023

This sample is representative for 5,000 m³

Minimums (es)

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

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

Signature/Date:

Job No. 2171 - 1000 S. Main St.

Project: Bay Area Rapid Transit System - Phase 1

Location: SR 99/101 (20) - Bay Area Rapid Transit (BART) Station

Type of Sample: Soil Sample

Delivery Date: 11/01/02

Reporting Date: 12/07/02

Reporting To: CEC

RESULTS OF SIEVE ANALYSIS According to ASTM D-622

Sieve Size (mm)	Sieve Size (No.)	Passing %
50	3	97.2
37.5	4	91.5
25	6	85.2
15	10	73.2
12.5	12	65.0
9.5	20	51.2
7.5	30	31.6
6.0	40	18.2
4.75	60	15.1

CEC 1000 S. Main St.

1000 S. Main St.

1000 S. Main St.



CEM
Cement Engineering Materials

Project Name: CEM 101
 Project: Washing of cement powder from 200 mesh
 Location: CEM 101-80 2=01.77+96 1=05.559670
 Type of sample: Soil Embankment
 Delivery Date: 11/10/2023
 Reporting Date: 11/10/2023
 Reporting No: 0110

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)	3.8

Signature: ...

CEM 101





Center for Environmental Research
1000 14th Street, NW, Washington, DC 20005

Client: Project:
 Location: Date:
 Type of sample:
 Collection Date:
 Reporting Date:
 Reporting No.:

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 of the Analyst

Signature of the Client





Center for Environmental and Infrastructure
Sustainability Research

Soil Sample No. CEI-001
 Location CEI Building, 1000 1st St, San Francisco, CA 94103
 Location CEI Building, 1000 1st St, San Francisco, CA 94103
 Type of Sample Soil Sample
 Delivery Date 1/10/2023
 Reporting Date 1/10/2023
 Reporting No. 01-10

Soil Classification

TEST	Results (%)	Limits according Projects Spec		
		(A-1-a)	(A-1-b)	(2-1-b)
Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(2-1-b)
2.00 mm (No. 10)	40.3	Max 50 %	—	—
0.425 mm (No. 40)	26.7	Max 30 %	Max 50 %	—
0.075 mm (No. 200)	8.8	Max 15 %	Max 15 %	Max 15 %
Liquid Limit	—	—	—	—
Plasticity Index	0	Max 5 %	Max 5 %	Max 10 %

*The test results are for the sample. The test results are for the sample.

Signatures/





Central Engineering Laboratory
Singapore Polytechnic, Singapore

Project Ref: 01-10
 Date: 15/10/2013
 Location: ST. JOHN'S COLLEGE, SINGAPORE
 Type of sample: Soil
 Delivery Date: 15/10/2013
 Reporting Date: 15/10/2013
 Reporting No: 01-10

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



1. Test dry density (gm/cm³) = 2.22

2. Optimum water content (%) = 10

Signature of: [Signature]

15/10/2013

IAS
 LABORATORY

Project No. 11/11/2023
 Location: Highway 100 km from the city of ...
 Test No. 11/11/2023
 Type of test: Self-Consolidating
 Delivery Date: 11/11/2023
 Reporting Date: 11/11/2023
 Reporting No: 01-10

Test Results of California Bearing Ratio (CBR) of Base Materials
ASTM D 1553

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.51
1.27	0.050	1.67
1.91	0.075	2.84
2.54	0.100	3.96
3.18	0.125	4.82
3.81	0.150	5.48
4.45	0.175	5.93
5.08	0.200	6.19
6.35	0.250	6.24

CBR Result	Stress (Mpa)		CBR 100 %
	St. Value	Design Value	
11/11/2023	1.25	1.25	100 %

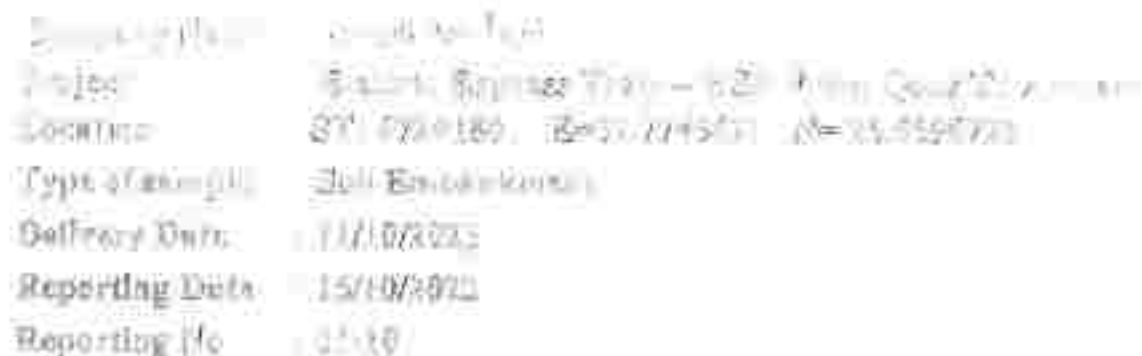
1. All test results are based on penetration resistance results.
 2. The results were based on dry density of 2.20 (g/cm³).
 3. 100 % optimum water content.
 4. Discharge limit 1.0 kg.

11/11/2023

11/11/2023

11/11/2023

11/11/2023



Customer : شركة مصر للصناعات الحديدية والصلب

Project : Electric Express Train - Section (B) - Gauge in Amman
Subject : determine the deformation and strength characteristics given by the plate loading test according specifications ORR 3813/2013-02 and project requirements
Test Location : Station 872+848 to 872+940
Station : 872+888
Level : +1.0
Test Date : 30/09/2023
Report Date : 06/11/2023
Type of Soil : Middle Endurance
Report No. : 01

Dear Gentlemen,

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

Apparatus

1. Loading plate 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 measure the settlement
4. Steel straightedges with magnetic supports to fix the dial gauges
5. Hydraulic jack with pump to transfer reactive loads to the loading plates
6. Dial indicator measuring device with scale capacity 100 Bar (Steelrod)
7. Hydraulic loading system by roller computer with weight approximately 15 tons
8. Calibration certificates are attached.

Test Procedures

1. Given the ground to test area is the required level with unreinforced soil
2. Install loading plates 300 mm and 300 mm diameter, horizontal dial and 2 dial gauges
3. Prior measuring the test applied pressure about 30 seconds
4. The dial gauges and the dial gauges should be set to zero
5. The 300 mm diameter plate, the test values are 5.0 kg/cm²
6. The load shall be applied in 3 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 5 minutes
8. The load shall be increased in 3 stages, to 50 %, 75 %, and approximately 2 % of the maximum load.
9. Following extending, a further (2 %) loading steps shall be carried out, provided, however, the load is to be increased only to the permissible range of the final cycle (so that the test load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

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

Report

- Type of soil : Middle Embankment
- Job requirement : $E_{v2} > 40$ MPa

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	20/10/2023
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_{v1} / E_{v2} Ratio
	From	To			E_{v1} (MPa)	E_{v2} (MPa)	
1	672+640	672+740	672+680	-1.5	38.5	41.7	1.06

Signature /

[Signature]

Client/Party Name : شركة عبد الرحمن التربة والخرسانة
Project : Building Express Train - Sector (B) - Ques to Ahmed
Test Date : 30/10/2023
Report Date : 04/11/2023
Station : 575+580
Test No. : 01

Nonreactive Static Plate Load Test of Soils DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.81	0.19	19.90	0.20	0.20
2	1.66	19.59	0.41	19.58	0.42	0.42
3	2.50	19.39	0.61	19.37	0.63	0.63
4	3.33	19.18	0.82	19.15	0.88	0.84
5	4.17	18.99	1.01	18.98	1.04	1.03
6	5.00	18.79	1.22	18.76	1.24	1.23

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.50	18.97	1.13	18.96	1.14	1.14
2	1.25	19.22	0.78	19.20	0.80	0.79
0	0.00	19.85	0.58	19.83	0.57	0.58

Loading Stage (2)

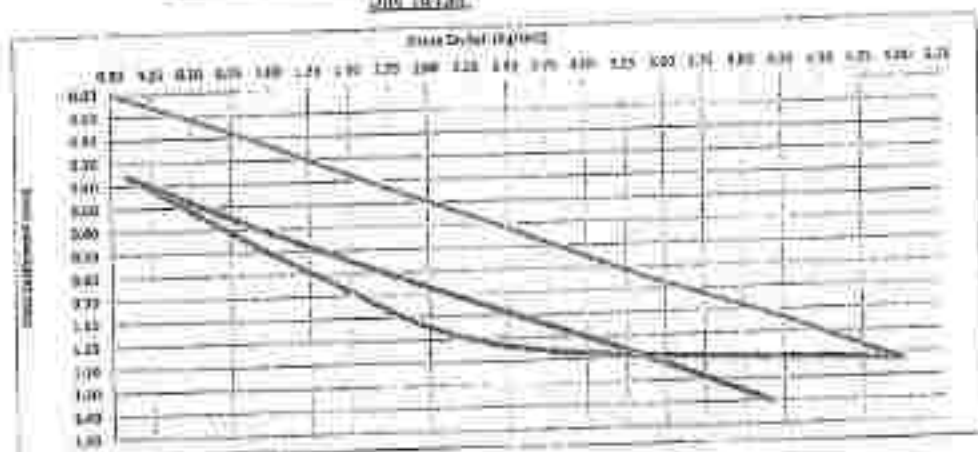
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	19.44	0.56	19.44	0.56	0.57
1	1.66	19.23	0.77	19.20	0.60	0.79
stress is reached						
2	2.50	19.01	0.99	19.00	1.00	0.99
3	3.33	18.85	1.17	18.83	1.16	1.18
4	4.17	18.64	1.39	18.63	1.41	1.40



Company Name
Project
Test Date
Report Date
Station
Test No.

مركز بحوث البترول (البحر)
Electric Excess (kg) - Net (kg) - Gross (kg)
30/10/2023
30/11/2023
172-188
21

Non-cohesive Static Plate Load Test of Soil DIN 18134



Load (t)	0	1	2	3	4	5	6
Stage (kg)	0	250	500	750	1000	1250	1500
Stress (kg/cm ²)	0.00	0.03	0.06	0.09	0.12	0.15	0.18
Settlement (mm)	0.00	0.03	0.06	0.09	0.12	0.15	0.18

Load (t)	1	2	3	4
Stage (kg)	250	500	750	1000
Stress (kg/cm ²)	0.03	0.06	0.09	0.12
Settlement (mm)	0.03	0.06	0.09	0.12

D (mm) = 300	D ₁ (mm) = 1.37	D ₂ (mm) = 0.43	D ₃ = 0.83
Set (mm) = 0.75 + 0.0025	38.3		

$$E_{vd} = 1.0$$

Load (t)	0	1	2	3	4	5
Stage (kg)	0	250	500	750	1000	1250
Stress (kg/cm ²)	0.00	0.03	0.06	0.09	0.12	0.15
Settlement (mm)	0.00	0.03	0.06	0.09	0.12	0.15

D (mm) = 300	D ₁ (mm) = 0.74	D ₂ (mm) = 1.21	D ₃ = 0.41
Set (mm) = 0.22 + 0.0025	81.7		

Net = Settlement or deformation during the loading stage.
Gross = Settlement or deformation during the unloading stage.
E = Initial diameter (mm)
D₁ = The distance between E₁ and E₂ from the maximum loading (Electric Excess)
D₂ = Distance to set points corresponding to E₁ and E₂ from the maximum loading load.



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Testing Date : 30/10/2023
Soil type : Middle Embankment
Location : ST From 672+640 To 672+780
Level : - 1.5 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	672+660	1581	2.25	6	2.13	95.8%	Comply
2	672+720	1502	2.26	5.8	2.14	96.2%	Comply
3	672+765	1401	2.28	6	2.15	97.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 5.8 %

Signature /


Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والبحوث

Company : شركة جيليس للأعمال والتجارة

Project : Basic Highway Test - Section (B) - Due to Accident
Subject : Determine the deformation and strength characteristics of soil by the plate loading test according specifications G.E.T. 18/34/2013-04 and project requirements
Test Location : Station 472+000 to 472+100
Station : 472+000
Level : -1.0
Test Date : 10/10/2022
Report Date : 04/11/2022
Type of soil : Middle Sand/Gravel
Report No. : 01

Dear Sir/Madam,

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. Oil gauges with accuracy 3.01 mm to measuring the settlement
4. Steel strapping with magnets attached to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Oil indicator measuring device with scale capacity 700 bar (Centred)
7. Reaction loading system by total counter with weight approximately 15 ton
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to be subjected level with undisturbed soil
2. Install loading plates 300 mm and 300 mm diameter, hydraulic jack and 3 oil gauges
3. Prior to starting the test apply preloading about 30 seconds
4. The dial gauge and the oil gauge shall be set to work
5. For a 300 mm loading plate, the test values are 0.0 kg/cm²
6. The load shall be applied in six stages, to approximately equal increments, until the required maximum desired 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 (2*) loading cycle shall be performed, in which, however, the load shall be maintained only to the preloading stage of the test cycle (ie that the 1st load is not reached)
10. At each stage the load shall be maintained until the rate of settlement of the plate becomes less than 0.03 mm/min.
11. Remove the loads



Report

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

Report

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

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	10/16/2023
Unusual observation made during test	NO
Description of the soil condition below the plate after testing	Soil 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	672+840	672+740	1872+680	-1.5	88.3	91.7	1.04

Signature : 



Consulting Engineering Bureau & Laboratories

مكتب محاسن الاستشارات الهندسية
مشاريع محاسن الوجه القبلي

Company Name : شركة محاسن الاستشارات الهندسية
Project : El-Dokki Express Train - Sector (B) - Giza to Asyut
Test Date : 30/10/2022
report date : 04/11/2022
Station : 873+400
Test No. : 01

Nonnegative Static Plate Load Tests of Soils
D/W 18124

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.81	0.19	19.80	0.20	0.22
2	1.65	19.38	0.61	19.58	0.42	0.42
3	2.50	18.99	1.01	19.17	0.63	0.63
4	3.33	18.19	1.82	18.15	0.85	0.84
5	4.17	17.09	2.90	18.56	1.54	1.52
6	5.00	16.18	3.82	18.76	1.24	1.23

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.00	18.87	1.13	18.96	1.14	1.14
2	1.25	19.12	0.75	19.10	0.80	0.79
3	0.100	19.05	0.35	19.15	0.37	0.36

Loading Stage (2)

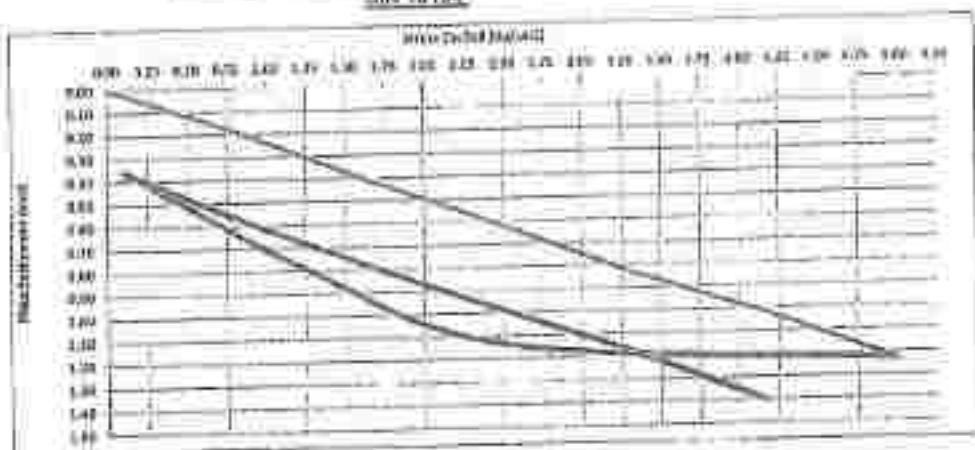
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	19.06	0.59	19.42	0.58	0.57
extremely rapid	1.65	19.25	0.77	19.30	0.60	0.73
stress is stopped						
2	2.50	19.02	0.98	19.07	1.00	0.99
3	3.33	18.85	1.17	18.81	1.19	1.18
4	4.17	18.83	1.38	18.88	1.41	1.40



Company Name
Project
Test Date
Report Title
Station
Test No.

شركة هندسة القبة والقبو
Mobile Support Train - Sector (C) - Doha to Amman
30/10/2023
34/11/2023
STD-080
01

Incremental Static Plate Load Tests of Soils 2023-10-24



Loading (T)	0	1	2	3	4	5	6
Stage (Kg)	0	586	1172.3	1758.5	2344.7	2930.9	3517.1
Stress (kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.20	0.42	0.62	0.84	1.02	1.20

Q (mm) = 300	S ₁ (mm) = 0.27	S ₂ (mm) = 0.81	ΔS = 0.54
E _{vd} (MPa) = 3.73E+06	98.3		

Loading (T)	0	1	2	3	4	5
Stage (Kg)	0	586.205	1172.3	1758.5	2344.7	2930.9
Stress (kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.00	0.27	0.70	0.99	1.16	1.40

Q (mm) = 300	S ₁ (mm) = 0.76	S ₂ (mm) = 1.23	ΔS = 0.48
E _{vd} (MPa) = 3.73E+06	91.7		

Loading (T)	1	2	3	4
Stage (Kg)	586.2	1172.3	1758.5	2344.7
Stress (kg/cm ²)	0.83	1.66	2.50	3.33
Settlement (mm)	1.23	1.14	0.79	0.38

$$E_{vd} = 1.20$$

S₁ = Settlement of specimen during the loading stage
S₂ = Settlement of specimen during the unloading stage
Δ = Plate diameter (mm)
Q = The difference between S₂ and S₁ from the maximum loading (mm)
ΔS = Difference in settlements corresponding to S₁ and S₂ from the maximum loading (mm)



Company Name : شركة عتف الزحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 01/11/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+980
Level : - 1.75 M
Report No. : 53-2

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	671+820	1454	2.24	5.6	2.12	95.5%	Comply
2	671+860	1363	2.31	6.4	2.17	97.6%	Comply
3	671+910	1490	2.33	6	2.19	98.8%	Comply
4	671+970	1454	2.24	5.8	2.12	95.3%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.22 gm/cm³
- At optimum moisture content = 5.8 %

Signature : 

Engineer / 
Date :
THERM SCHELT (FORME)

IAS
school of
engineering

11/11/2023
Page 1 of 1
11/11/2023 11:11 AM

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qons To Armanat
Testing Date : 01/11/2023
Soil type : Middle Embankment
Location : ST From 671+980 To 672+180
Level : - 1.75 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 (%)	Acceptance
1	672+020	1658	2.26	5.3	2.15	97.2%	Comply
2	672+070	1811	2.26	5.5	2.14	97.0%	Comply
3	672+120	1770	2.32	5	2.21	99.9%	Comply
4	672+170	1609	2.28	5	2.18	98.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

تمت في مكتب
تاريخ
01/11/2023

IAS
ACCREDITED

تمت في
01/11/2023
مكتب

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

Dear Gentleman,

Attached here with the delivered on 18 / 10 / 2023

This sample is representative for 5.000 M³

Materials test

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

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

Signature / 


Company Name : شركة عبد الرحمن
 Project : Electric Express Train – HSR From Qoue To Arman
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 18/10/2023
 Reporting Date : 22/10/2023
 Reporting No. : 01-11

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	98.1
37.5	1.5	92.6
25	1	88.6
19	¾	75.1
12.50	½	68.4
9.50	3/8	61.5
4.75	4	55.3
2.00	10	40.2
0.425	40	24.2

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No.200)	9.7

Signature /.....



Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Armut
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

**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 عبد الرحمن
 Project : Electric Express Train – HSR From Qass To Arman
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 18/10/2023
 Reporting Date : 22/10/2023
 Reporting No. : 01-11

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
* Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No. 10):	40.2	Max 50 %	—	—
0.425 mm (No. 40):	24.2	Max 30 %	Max 50 %	—
0.075 mm (No. 200):	9.7	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

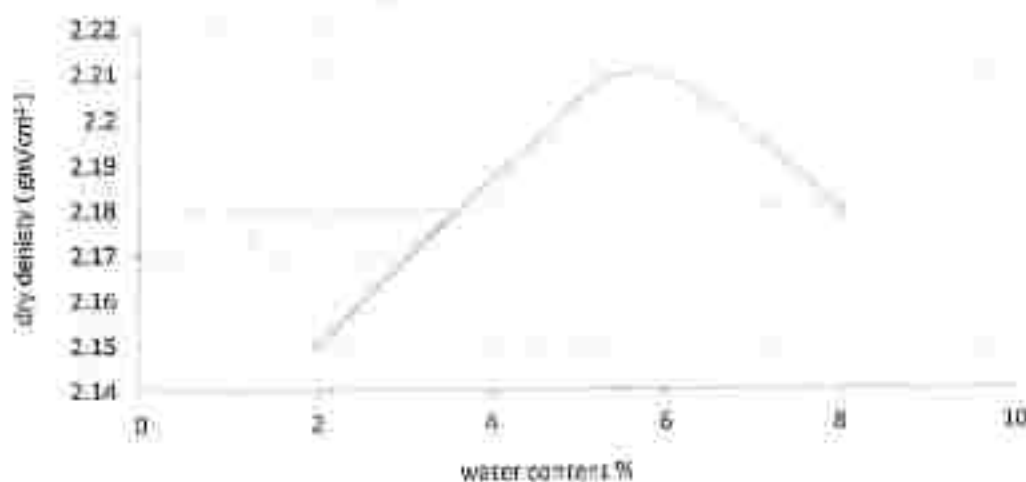
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



Company Name : شركة عياد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 5.8

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

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	1.67
1.91	0.075	2.89
2.54	0.100	3.91
3.18	0.125	4.77
3.81	0.150	5.38
4.45	0.175	5.73
5.08	0.200	5.88
6.35	0.250	5.93

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	56.5 %
	6.90	3.91	

Notes:

- 1- Attached graph shows penetration resistance versus penetration magnitude.
- 2- The sample was compacted to dry density of $\rho_d = 2.21 \text{ (gm/cm}^3\text{)}$
At $\approx 5.8 \%$ optimum water content.
- 3- Surcharge load 4.50 Kg.
- 4- CBR > 10 for middle and lower embankments according project spec page No 35.

Signature / 

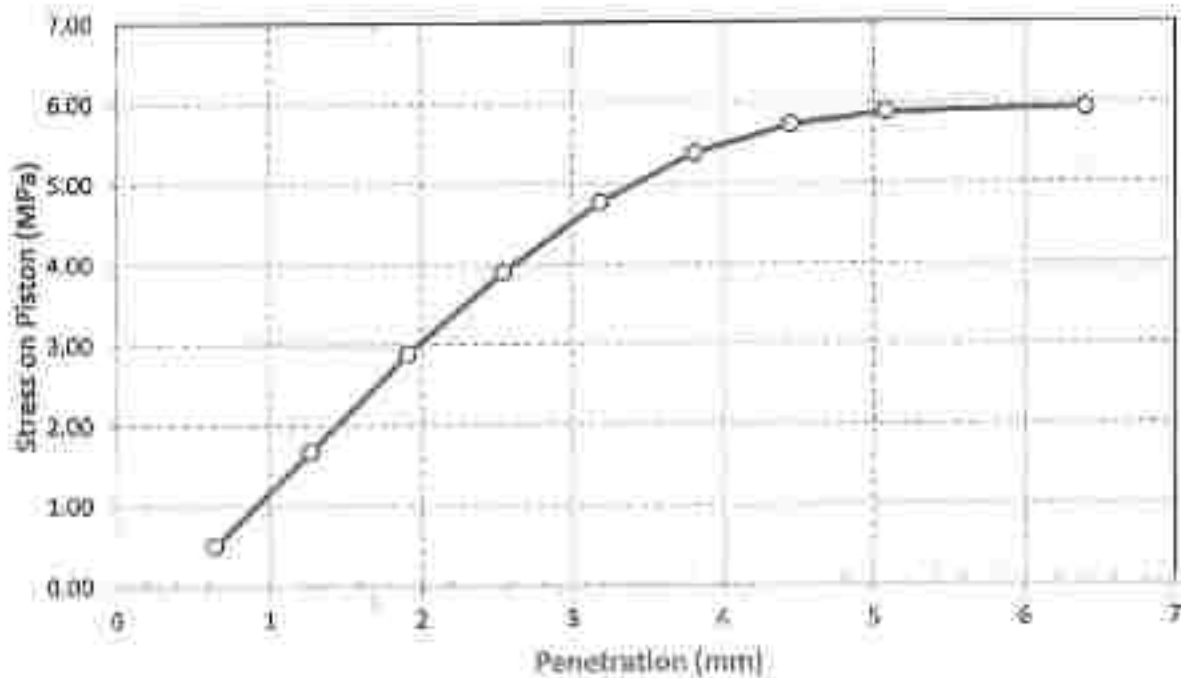
Engineer / 

Stamp / 



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 18/10/2023
Reporting Date : 22/10/2023
Reporting No. : 01-11

Load Penetration Curve of CBR Test ASTM D-1883



Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 05/11/2023
Soil type : Lower Embankment
Location : ST From 672+640 To 672+780
Level : - 1.25 M
Report No. : 54-2

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1322	2.28	6.4	2.15	97.2%	Comply
2	672+680	1354	2.23	6	2.10	95.1%	Comply
3	672+700	1515	2.26	5.8	2.14	96.7%	Comply
4	672+720	1524	2.25	5.6	2.13	96.3%	Comply
5	672+740	1691	2.22	5.5	2.11	95.3%	Comply
6	672+760	1632	2.30	6.4	2.17	98.0%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.25 gm/cm³
- At optimum moisture content = 5.8 %

Signature



CEL Building 514543
Tadmon, Gali
P.O. Box 575437 - Jeddah



إدارة المشاريع
إدارة الجودة
إدارة السلامة
إدارة البيئة

MEMO: تجربة حديد الرصن لتسيير القطار < >

Project: Electric Express Train - Sector (B) - Ouda to Assiut.
Subject: (Determine the deformation and strength characteristics of soil by the plate loading test according specifications DBI 10134:2012-EN and project requirements)
Test Location: Station: 671+780 to 671+880
Station: 671+880
Level: +1.3
Test Date: 07/15/2023
Report Date: 08/11/2023
Type of soil: Original Earth
Report No.: 01

Dear Gentlemen,

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

Equipment

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 for measuring the settlement.
4. Steel straightedge with hydraulic supports to load the dial gauges.
5. Hydraulic jack with pump to transfer massive loads to the loading plate.
6. Dial indicator measuring device with accuracy 7/10 for (0.001mm).
7. Reaction loading system by roller compactor with weight approximately 10 ton.
8. Calibration certificates are attached.

Test Procedure:

1. Clean the ground on test area to the required level with undisturbed soil.
2. Install testing system: 300 mm and 300 mm diameter, hydraulic jack and 2 dial gauges.
3. Prior to starting the test applied preloading about 20 seconds.
4. The strain gauge and the dial gauge shall be set to zero.
5. For a 300 mm loading plate, the first values are 0.0 kg/cm².
6. The load shall be applied in six stages, in approximately equal increments over the required maximum total load is reached.
7. Each change in load (from stage to stage) shall be completed with one minute.
8. The load shall be released in 3 stages, in 50 %, 25 %, and approximately 1 % of the maximum load.
9. Following unloading, a further (3rd) loading cycle shall be carried out, to verify, to verify, the load is or is not increased only at the maximum stage of the first cycle (so that the S.E. test is not repeated).
10. At each stage the load shall be determined until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads.



Report:

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

Report

- Type of soil : Original Earth
- Job requirement : $lv2 > 40$ MPa

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	07/01/2013
Unusual observation made during test	NO
Description of the soil conditions below the plate after testing	No observation

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	071+780	071+800	071+850	1.5	100.0	15.0	1.17

Signature /



Company Name : شركة عبد الرحمن للتجارة والتجارة
Project : Active Express Train - Bazar (B) - One in a row
Test Date : 07/11/2023
Report Date : 08/11/2023
Station : 071+050
Test No. : 01

Noncompetitive Static Plate Load Tests of Soils DIN 18136

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1 mm	Settlement mm	Dial 2 mm	Settlement mm	Average
0	0.00	22.00	0.00	22.00	0.00	0.00
1	0.83	19.80	0.20	19.80	0.13	0.15
2	1.66	19.45	0.55	19.60	0.33	0.34
3	2.50	19.42	0.57	19.45	0.51	0.54
4	3.33	19.30	0.70	19.31	0.68	0.71
5	4.17	19.07	0.93	19.10	0.90	0.91
6	5.00	18.92	1.08	18.85	1.09	1.07

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1 mm	Settlement mm	Dial 2 mm	Settlement mm	Average
1	2.50	19.81	0.69	19.90	0.63	0.66
2	1.25	19.80	0.70	19.77	0.71	0.71
3	0.100	19.78	0.25	19.65	0.35	0.30

Loading Stage (2)

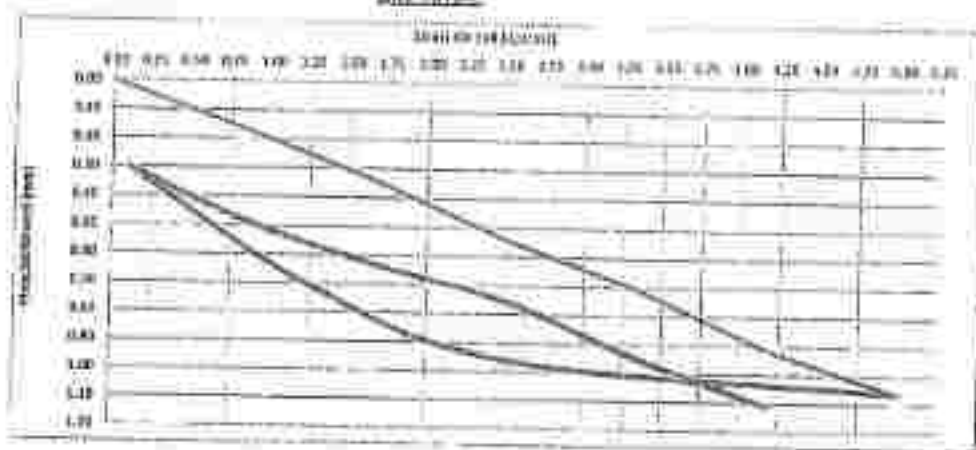
Loading	Stress Kg/cm ²	Dial 1 mm	Settlement mm	Dial 2 mm	Settlement mm	Average
0	0.83	19.67	0.43	19.67	0.83	0.48
1	1.66	19.43	0.57	19.43	0.60	0.63
stress is reached						
2	2.00	19.39	0.71	19.20	0.80	0.76
3	3.33	19.10	0.80	19.05	0.90	0.94
4	4.17	18.84	1.09	18.87	1.13	1.11



Company Name
Project
Test Date
Report Date
Station
Test No.

شركة محاملات الإستشارات الهندسية
Remix Concrete Deck - Bridge (5) - El-Dokki Station
07/11/2020
08/11/2020
05+000
01

Nondestructive Slab Plate Load Test of Slab Slab 05130



Loading (T)	0	1	2	3	4	5	6
Stage(kg)	0	300	1172.8	1786.3	2352.8	2966.1	3579.5
Stress (Kg/cm ²)	0.00	0.03	1.06	2.00	3.03	4.17	5.20
Settlement (mm)	0.00	0.16	0.34	0.54	0.71	0.81	1.07

Unloading (T)	1	2	3	4
Stage(kg)	3000	1786	884	71
Stress (Kg/cm ²)	0.03	2.00	1.000	0.10
Settlement (mm)	1.07	0.06	0.71	0.10

Q (mm) = 300	Sl (mm) = 4.01	Sl (mm) = 0.73	Sl (mm) = 0.44
Sl (mm) = 0.16 (mm)	103.1		

$$2 \times 0.001 = 1.07$$

Loading (T)	0	1	2	3	4	5
Stage(kg)	0	300.395	1172.8	1786.3	2352.8	2966.1
Stress (Kg/cm ²)	0.00	0.03	1.06	2.00	3.03	4.17
Settlement (mm)	0.00	0.08	0.03	0.70	0.34	1.11

Q (mm) = 300	Sl (mm) = 0.42	Sl (mm) = 0.29	Sl (mm) = 0.30
Sl (mm) = 0.16 (mm)	103.1		

W1 = load at deflection during the loading stage.

W2 = load at deflection during the unloading stage.

Sl = PSI Settlement (mm)

Sl = The difference between S1 and S2 from the maximum load (mm) (kg/cm²)

Sl = Difference in settlement corresponding to S1 and S2 from the maximum loading level



Company Name : شركة عجلة الرحمن
Project : Electric Express Train – HSR From Qous To Armani
Testing Date : 05/11/2023
Soil type : Middle Embankment
Location : ST From 671+780 To 671+980
Level : - 1.3 M
Report No. : 54-1

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	671+800	1474	2.26	5.6	2.14	97.0%	Comply
2	671+840	1522	2.29	6.4	2.16	97.6%	Comply
3	671+880	1319	2.29	6	2.16	97.6%	Comply
4	671+940	1328	2.27	5.8	2.15	97.2%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



Summary : **ملخص التجربة (المشروع)**

Project : **El-Dokki Express Train - Section (B) - Open in Ardena**
Subject : **Determine the deformation and strength characteristics of ball by the plate loading test according specifications EN 18254:2013-04 and project requirements**
Test Location : **Station: 67(+700) to 87(+800)**
Start : **67(+800)**
Level : **-1.5**
Test Date : **07/10/2023**
Report Date : **08/11/2023**
Type of soil : **Original Earth**
Report No. : **01**

Dear Sandeman,

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

Apparatus

1. Loading plate consists of two plates with 300 mm and 500 mm diameter
2. The thickness of plates 30 mm
3. Dial gauges with accuracy 0.01 mm to measuring the settlement
4. Steel strapping with magnetic support to fixed the dial gauges
5. Hydraulic jack with pump to transfer reaction loads to the loading plates
6. Dial indicator measuring device with main capacity 700 Bar (tonnes)
7. Reaction loading system by roller supports with weight approximately 15 ton
8. Cell load cell amplifier are attached

Test Procedure:

1. Clear the ground on test area to the required level with uniform soil
2. Install loading plates 300 mm and 500 mm diameter, hydraulic jack and 3 dial gauges
3. Prior to starting the test applied preloading about 20 seconds
4. The strain gauges and the dial gauges shall be calibrated
5. For a 300 mm loading plate, the load shall be 2.0 kg/cm²
6. The load shall be applied to the plates, it approximately equal increments, and the required increments normal values is required
7. Each change in load (from stage to stage) shall be completed within one minute
8. The load shall be introduced in 3 stages, at 33 %, 66 % and approximately 99 % of the maximum load
9. Following introduction, a linear (2nd) loading stage shall be applied and, at which, however, the load is to be increased only to the maximum stage of the test cycle (so that the full load is not reached)
10. At each stage the load shall be maintained with the rate of settlement of the plate becomes less than 0.02 mm/min
11. Remove the loads



Report

1. Evaluation and representation of results.
2. Load Settlement curve.
3. This 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 : $E_{u2} > 40 \text{ MPa}$

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	10/11/2018
Unusual observation made during test	NB
Description of the soil condition below the plate after testing	No deformation

Evaluation and representation of results

Test No.	Station		Location	Level (m)	First Cycle	Second Cycle	E_{u1}/E_{u2} Ratio
	From	To			$E_{u1} \text{ (MPa)}$	$E_{u2} \text{ (MPa)}$	
1	671+780	671+880	7671+890	1.15	100.0	116.6	1.17

Signature /





Consulting Engineering Bureau & Laboratories

مكتب دراسات الاستشارات الهندسية

مشاريع محافظات الوجه القبلي

Company Name : شركة عبد الرحمن النجدي والشركاء
Project : Khada Supers Train - Sector (B) - Dak El-Jessak
Test Date : 07/11/2023
Report Date : 08/11/2023
Station : 071+850
Test No. : 01

Nonrecursive Static Plate Load Tests of Soils
DIN 18134

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	20.00	0.00	20.00	0.00	0.00
1	0.83	19.60	0.20	19.60	0.13	0.16
2	1.66	19.65	0.34	19.67	0.33	0.34
3	2.50	19.45	0.97	19.40	0.81	0.84
4	3.33	19.35	0.72	19.31	0.69	0.71
5	4.17	19.07	0.93	19.10	0.90	0.91
6	5.00	18.93	1.00	18.95	1.06	1.07

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.50	19.03	0.90	19.07	0.93	0.90
2	1.66	18.90	0.70	18.94	0.71	0.71
3	0.83	18.75	0.50	18.65	0.55	0.50

Loading Stage (2)

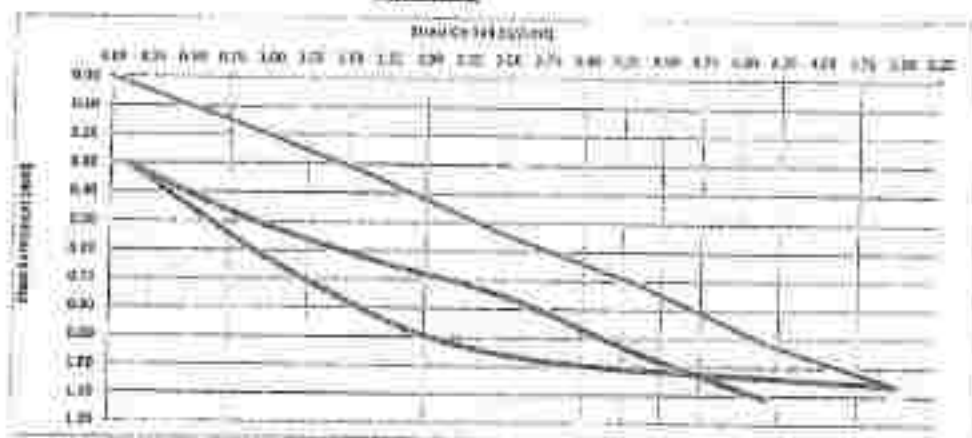
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	19.57	0.43	19.47	0.53	0.48
ultimate soil	1.66	19.43	0.57	19.31	0.68	0.63
stress is reached						
2	2.50	19.25	0.71	19.25	0.80	0.70
3	3.33	19.20	0.80	19.01	0.90	0.94
4	4.17	19.01	1.00	18.87	1.13	1.11



Capacity (mm)
Project
Test Date
Report Date
Station
Test No.

شركة هندسة الجسور والاساسات
: Elastic Expansion Test - Series (B) - Data is Approx.
07/11/2023
08/11/2023
BT-4540
51

Nonpositive Stem Flange Load Tests of Sills SIV 56134



Loading (T)	0	1	2	3	4	5	6
Stage (kg)	0	889	1778.8	2667.6	3556.4	4445.2	5334.0
Stress (Kg/cm ²)	0.00	0.83	1.66	2.50	3.33	4.17	5.00
Settlement (mm)	0.00	0.10	0.34	0.64	0.71	0.81	1.07

Unloading (T)	1	2	3	4
Stage (kg)	3556.4	2667.6	1778.8	889
Stress (Kg/cm ²)	3.33	2.50	1.66	0.83
Settlement (mm)	1.17	0.95	0.71	0.30

D (mm) =	300	S ₁ (mm) =	0.21	S ₂ (mm) =	0.75	ΔS =	0.61
S ₁ (mm) =	0.21	S ₂ (mm) =	0.75				

Settlement = 1.17

Loading (T)	0	1	2	3	4	5
Stage (kg)	0	889.555	1779.1	2668.2	3557.3	4446.4
Stress (Kg/cm ²)	0.10	0.83	1.66	2.50	3.33	4.17
Settlement (mm)	0.20	0.48	0.83	0.76	0.84	1.11

D (mm) =	300	S ₁ (mm) =	0.68	S ₂ (mm) =	0.36	ΔS =	0.38
S ₁ (mm) =	0.68	S ₂ (mm) =	0.36				

S₁ = Settlement at maximum load during the loading stage.

S₂ = Settlement at zero load during the unloading stage.

ΔS = Total settlement.

S₁ = The difference between S₁ and S₂ from the maximum loading (mm).

ΔS = Difference in settlement corresponding to S₁ and S₂ from the maximum loading (mm).



Company Name : شركة صيدا الرحمن
Project : Electric Express Train - HSR From Qass To Arman
Testing Date : 09/11/2023
Soil type : Middle Embankment
Location : ST From 671+980 To 672+190
Level : - 1.5 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	672+030	1924	2.31	6	2.18	98.8%	Comply
2	672+080	1324	2.31	6.4	2.17	98.1%	Comply
3	672+130	1558	2.28	6	2.15	97.3%	Comply
4	672+175	1347	2.27	6	2.14	96.7%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /



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 : Middle Embankment
- Job requirement : $E_{v2} > 40 \text{ MPa}$

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	10/11/2023
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	671+980	672+080	672+050	+7.5	80.1	80.9	1.07

Signature :

[Handwritten Signature]



Company Name : شركة النيل الهندسة والمقاولات
Project : Eastern Economic Zone - Sector 22 - Zone 10 - New El Masara
Test Date : 09/11/2023
Report Date : 11/11/2023
Station : 572+030
Test No. : 81

Nonresistive Static Plate Load Tests of Soils DJN 18334

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	30.00	0.00	30.00	0.00	0.00
1	0.85	29.78	0.22	29.83	0.17	0.21
2	1.66	29.58	0.42	29.66	0.40	0.41
3	2.50	29.38	0.62	29.43	0.67	0.65
4	3.33	29.20	0.80	29.18	0.62	0.80
5	4.17	29.08	1.08	29.05	1.05	1.07
6	5.00	28.98	1.28	28.78	1.22	1.24

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	2.50	29.85	1.15	29.83	1.17	1.16
2	1.25	29.70	0.74	29.75	0.65	0.99
3	0.105	29.70	0.30	29.85	0.17	0.24

Loading Stage (2)

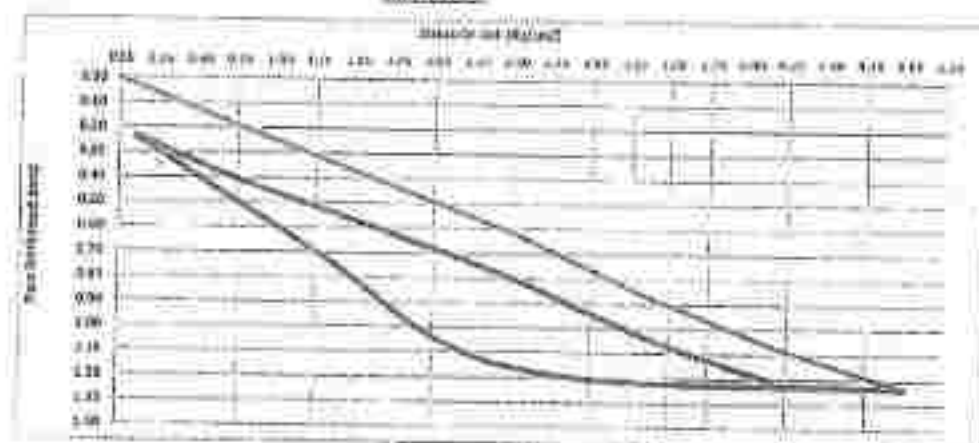
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.82	29.14	0.40	29.61	0.30	0.43
immediately stop	1.66	29.35	0.51	29.40	0.60	0.51
stress is reached.						
2	2.50	29.18	0.62	29.38	0.78	0.80
3	3.33	28.98	1.07	29.03	0.99	1.03
4	4.17	28.75	1.28	28.83	1.17	1.21



Company Name
Project
Test Date
Report Date
Station
Test No.

شركة معادلات الهندسية والاستشارات
Electricity Sector - Sector 22 - Desh El Araby
00/1/0000
11/11/2000
072+000
01

Nonrepulsive Static Plate Load Tests of Soil DIN 18156



Loading (t)	0	1	2	3	4	5	6
Stage (kg)	0	200	1172.8	1765.3	2252.8	2846.1	3439.5
Stress (kg/cm²)	0.00	0.03	1.00	2.00	3.33	4.17	5.60
Settlement (mm)	0.00	0.21	0.41	0.60	0.80	1.01	1.24

D (mm) = 300	St (mm) = 0.21	Stress (mm) = 0.41	St = 0.21
Cv1 (MPa) = 0.75 D³/60000	61.7		

Loading (t)	0	1	2	3	4	5
Stage (kg)	0	200	1172.8	1765.3	2252.8	2846.1
Stress (kg/cm²)	0.10	0.03	1.00	2.00	3.33	4.17
Settlement (mm)	0.24	0.43	0.61	0.80	1.00	1.21

D (mm) = 200	St (mm) = 0.21	Stress (mm) = 1.00	St = 0.21
Cv1 (MPa) = 0.75 D³/60000	80.3		

Unloading (t)	1	2	3	4
Stage (kg)	2833	1768	884	71
Stress (kg/cm²)	5.60	2.00	1.00	0.10
Settlement (mm)	1.24	1.15	0.80	0.24

$$Cv200 = 1.00$$

Cv1 = Modulus of settlement during the loading stage.

Cv2 = Modulus of settlement during the unloading stage.

Cv = Total Modulus (mm).

St = The difference between 0.2 and 0.7 from the modulus of settlement (kg/cm²).

St = The difference between 0.2 and 0.7 from the modulus of settlement (mm).



Consent: صورة من الرسم لاصية ولقنوات

Project : Electric Express Train - Sector (B) - Giza to Assiut
Subject : Determine the dimension and strength characteristics of soil for the plate loading test according specifications EN 1813:2012-04 and project requirements
Test Location : Station 572+000 to 572+100
Station : 572+100
Level : +1.0
Test Date : 1/09/2023
Report Date : 1/11/2023
Type of soil : Middle Silty-sand
Report No : 1.01

Dear Sir/Madam,

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

Apparatus

1. Loading frame consist of two plates with 300 mm and 300 mm diameter
2. The thickness of plates 10 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 (Firmtest)
7. Reaction loading system by roller compactor with weight approximately 15 tons
8. Calibration certificate 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 50 seconds
4. The dial gauge and the dial groups shall be set to zero
5. For a 300 mm loading plate, the test plates were 5.0 kN/m²
6. The load shall be applied in 3 stages, in approximately equal increments, with the required maximum bearing stress is reached.
7. Each stage is held from stage to stage shall be completed within one minute
8. The load shall be measured in 3 stages, to 50 %, 75 %, and approximately 2 % of the maximum load
9. Following completion, a further (2nd) loading cycle shall be carried out, in which, however, the load is to be increased only to the previous stage of the first cycle (so that the full load is not reached)
10. At each stage the (soil sha) be maintained, until the rate of settlement of the plate becomes less than 0.02 mm/min.
11. Remove the loads



Report

1. Evaluation and representation of results.

2. Load Settlement curve.

3. The test report content the following

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

Report

- Type of soil : Middle Embankment
- Job requirement: $E_{v2} > 40$ MPa

Item	Description
Type of bedding material below the plate	Natural Soil
Plate Diameter (mm)	300
Date of measurement	08/11/2023
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	672+080	672+180	672+120	+1.5	98.7	151.5	1.57

Signature: 



Company Name : شركة حربة النور للتجارة والتكليفات
 Project : Blank Express Drive - Station 10 - Udaipur to Amritsar
 Test Date : 05/11/2023
 report date : 11/11/2023
 Station : 973+130
 Test No. : 01

Nonrelative Static Plate Load Tests of Soils

Q161634

Loading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.00	10.40	0.00	10.40	0.00	0.00
1	0.83	10.39	0.20	10.41	0.18	0.19
2	1.65	10.40	0.35	10.47	0.42	0.34
3	2.50	10.48	0.83	10.45	0.89	0.64
4	3.33	10.23	0.71	10.25	0.74	0.73
5	4.17	10.09	0.92	10.09	0.95	0.94
6	5.00	10.04	1.09	10.00	1.11	1.10

Unloading Stage (1)

Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
1	3.00	10.38	1.02	10.31	1.05	1.04
2	1.25	10.17	0.88	10.10	0.90	0.89
3	0.500	10.49	0.81	10.42	0.82	0.82

Loading Stage (2)

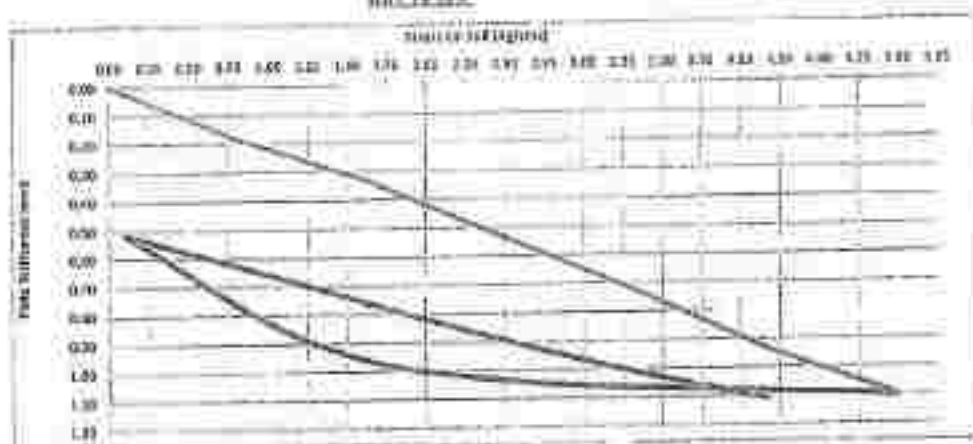
Loading	Stress Kg/cm ²	Dial 1	Settlement	Dial 2	Settlement	Average
			mm		mm	
0	0.83	10.38	0.62	10.30	0.64	0.63
1	1.65	10.35	0.75	10.27	0.70	0.72
Stress is reached						
2	2.50	10.13	0.83	10.06	0.91	0.90
3	3.33	10.00	1.00	10.04	1.02	1.01
4	4.17	10.00	1.10	10.02	1.12	1.11



Company Name
Product
Test Date
Report Date
Station
Test No.

دفتره جاب آزمون و کنترل
Electric Pressure Test - Report (I) - CME in cement
001/02583
11/1/2003
073+120
10

Regressive State Plane Load Tests of Soil
200-10134



Loading (1)	0	1	2	3	4	5	6
Stage (kg)	0	954.368	1772.8	2591.3	3409.8	4228.3	5046.8
Stress (kg/cm ²)	0.00	0.83	1.66	2.49	3.32	4.17	5.00
Settlement (mm)	0.00	0.15	0.54	0.93	1.32	1.71	2.10

D (mm) =	300	31.0mm	0.10	Settlement =	0.22	ΔS =	0.88
σ ₁ (MPa) =	0.75 MPa	0.75					

Loading (1)	0	1	2	3	4	5
Stage (kg)	0	954.368	1772.8	2591.3	3409.8	4228.3
Stress (kg/cm ²)	0.00	0.83	1.66	2.49	3.32	4.17
Settlement (mm)	0.00	0.15	0.54	0.93	1.32	1.71

D (mm) =	300	31.0mm	0.10	Settlement =	0.22	ΔS =	0.88
σ ₁ (MPa) =	0.75 MPa	0.75					

Unloading (1)	1	2	3	4
Stage (kg)	3052	2798	2544	2290
Stress (kg/cm ²)	2.68	2.43	2.18	1.93
Settlement (mm)	1.10	1.01	0.88	0.75

Ev/Ev1 = 0.67

Ev = modulus of deformation during the loading stage
Ev1 = modulus of deformation during the unloading stage
S = Final settlement (mm)
ΔS = The difference between S₁ and S₂ from the modulus loading test and (S₁ - S₂)
ΔS = Difference in settlement occurring in S₁ and S₂ from the modulus loading test



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مكتب محاسن الإستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR from Qous To Arment
Testing Date : 11/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 1.25 M
Report No. : 57-2

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	671+800	1399	2.32	5.3	2.20	99.6%	Comply
2	671+820	1596	2.24	5.5	2.12	95.9%	Comply
3	671+840	1764	2.22	5	2.12	95.9%	Comply
4	671+860	1550	2.27	5	2.16	97.9%	Comply
5	671+880	1443	2.33	5.6	2.20	99.6%	Comply
6	671+900	1459	2.35	6.4	2.21	99.8%	Comply
7	671+930	1416	2.28	6	2.15	97.5%	Comply
8	671+960	1538	2.28	5.8	2.16	97.6%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.11 gm/cm³
- At optimum moisture content = 6.8 %

Signature /

18/11/2023
27/11/2023
10/12/2023



18/11/2023
27/11/2023
10/12/2023

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

Dear Gentleman,

Attached here with the delivered on 21 / 10 / 2023

This sample is representative for 5,000 M³

Materials test

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

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

Signature / ..





Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة والمختبرات

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

RESULTS OF SIEVE ANALYSIS According to ASTM D-422.

Sieve Size (mm)	Sieve Size (IN)	Passing %
50	2	97.3
37.5	1.5	91.6
25	1	87.4
19	$\frac{3}{4}$	75.3
12.50	$\frac{1}{2}$	67.2
9.50	$\frac{3}{8}$	61.7
4.75	4	56.3
2.00	10	40.5
0.425	40	25.3

Signature /



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مكتب استشارات الهندسة والمختبرات



إدارة المشاريع
إدارة الجودة
إدارة البيئة



Consulting Engineering Bureau & Laboratories
مكتب استشارات الهندسة

Company Name : شركة عباد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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

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

Signature /.....



10 Avenue Hill Street
Doha, Qatar
T: +966 11 2333 0000



Page 1 of 1
Date: 25/10/2023

CEL

Consulting Engineering Bureau & Laboratories
مكتب محاسن الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armani
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

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

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

Signature /



CEL Consulting Engineering Bureau & Laboratories
P.O. Box 11111
Cairo, Egypt 11511



CEL Consulting Engineering Bureau & Laboratories
P.O. Box 11111
Cairo, Egypt 11511

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Arman
Location : ST: 672+180 E=32.7745621 N= 25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 25/10/2023
Reporting No. : 01-12

Soil Classification

TEST	Results (%)	Limits according Projects Specs		
		(A-1-a)	(A-1-b)	(A-2-4)
• Group Classification	(A-1-a)	(A-1-a)	(A-1-b)	(A-2-4)
2.00 mm (No.10).	40.5	Max 50 %	—	—
0.425 mm (No. 40).	25.3	Max 30 %	Max 50 %	—
0.075 mm (No. 200).	9.6	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		—	—	—
Plasticity index	0	Max 6 %	Max 6 %	Max 10 %

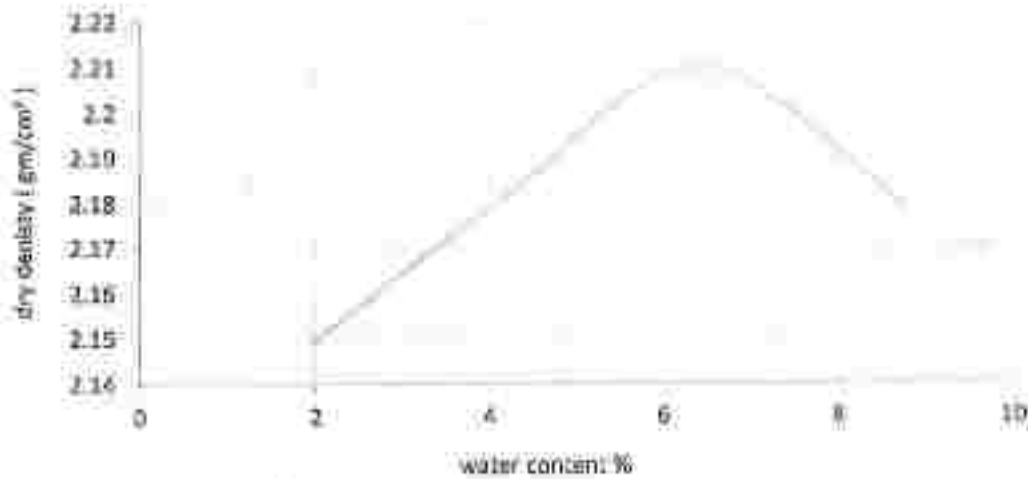
The test results are (☐ Comply - ☐ Not Comply) with specifications limits

Signature /



Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Location : ST: 672+180 E=32.7745621 N=25.6596723
Type of sample : Soil Embankment
Delivery Date : 21/10/2023
Reporting Date : 23/10/2023
Reporting No. : 01-12

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



- Max dry density (gm/cm³) : 2.21
- Optimum moisture content % : 5.8

Signature /

Company Name : شركة عبد الرحمن
 Project : Electric Express Train - HSR From Qous To Armanat
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 21/10/2023
 Reporting Date : 25/10/2023
 Reporting No. : 01-12

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

penetration		stress on piston (Mpa)
mm	Inch	
0.64	0.025	0.43
1.27	0.050	1.47
1.91	0.075	2.56
2.54	0.100	3.56
3.18	0.125	4.56
3.81	0.150	5.22
4.45	0.175	5.63
5.08	0.200	5.88
6.35	0.250	5.95

CBR Result	Stress (Mpa)		CBR 100 %
At 0.1 inch (2.54 mm) penetration	St. Value	Sample results	51.5 %
	6.90	3.58	

Notes:

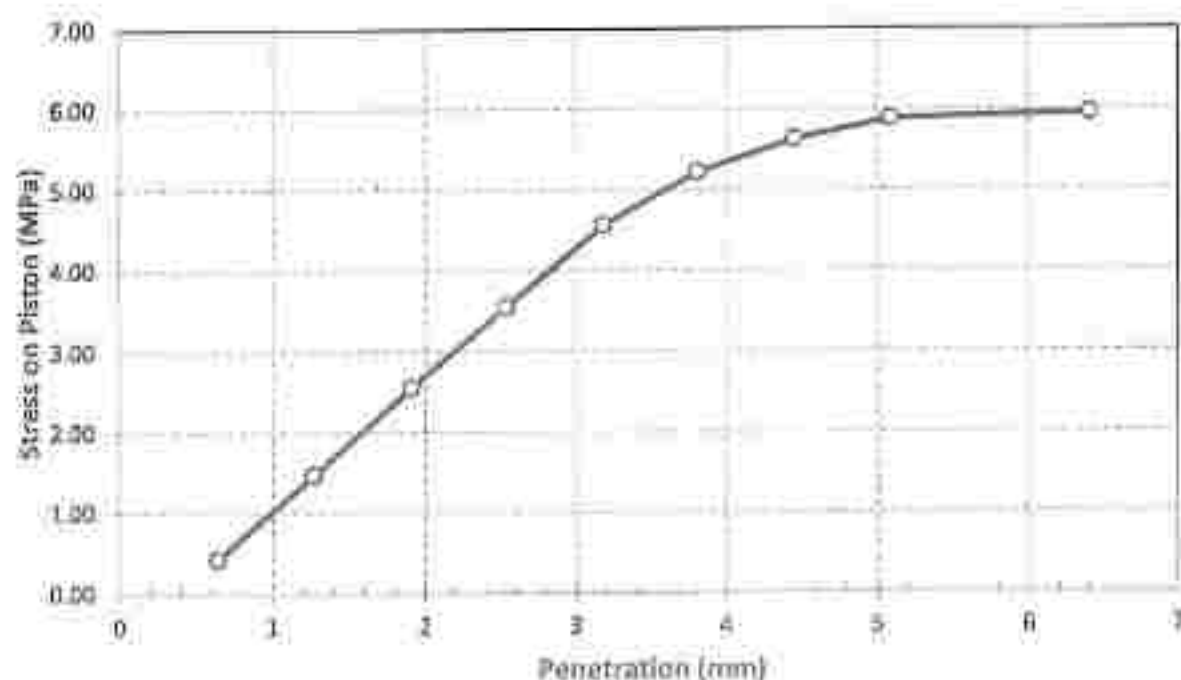
- 1- Attached graph shows penetration resistance versus penetration magnitude.
 - 2- The sample was compacted to dry density of $\approx 2.21 \text{ (gm/cm}^3\text{)}$
 $A_1 = 5.8 \%$ optimum water content.
 - 3- Surcharge load 4.50 Kg.
- 4- CBR ≥ 10 for middle and lower embankments according project spec page No 36.

Signature /



Company Name : شركة عبد الرحمن
 Project : Electric Express Train - HSR From Qous To Arman
 Location : ST: 672+180 E=32.7745621 N= 25.6596723
 Type of sample : Soil Embankment
 Delivery Date : 21/10/2023
 Reporting Date : 25/10/2023
 Reporting No. : 01-12

Load Penetration Curve of CBR Test
ASTM D-1883



Signature /

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 مكتب استشارات الهندسية

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مكتب دراسات الاستشارات الهندسية

Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qous To Armanat
Testing Date : 14/11/2023
Soil type : Upper Embankment
Location : ST From 672+640 To 672+780
Level : -1. M
Report No. : 58

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/cm ³	Moisture Content %	Dry Density (gm/cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1475	2.25	5.8	2.13	96.2%	Comply
2	672+680	1360	2.30	5.3	2.19	99.0%	Comply
3	672+700	1459	2.24	5	2.14	96.7%	Comply
4	672+720	1341	2.27	6	2.14	96.9%	Comply
5	672+746	1355	2.24	5.8	2.11	95.6%	Comply
6	672+773	1537	2.28	6	2.15	97.4%	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature /

14/11/2023

2023/11/14

2023/11/14

IAS
Architect

CEL
Consulting Engineering Bureau & Laboratories
مكتب دراسات واستشارات الهندسية

Company Name : شركة عقيد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 14/11/2023
Soil type : Upper Embankment
Location : ST From 671+980 To 672+180
Level : - 1.25 M
Report No. : S9

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	672+000	1390	2.23	5.3	2.12	95.8%	Comply
2	672+025	1712	2.26	5.5	2.14	96.8%	Comply
3	672+050	1746	2.29	5	2.18	98.8%	Comply
4	672+075	1534	2.27	5	2.16	97.9%	Comply
5	672+095	1449	2.32	5.6	2.20	99.5%	Comply
6	672+125	1398	2.31	6.4	2.18	98.4%	Comply
7	672+155	1385	2.33	6	2.19	99.3%	Comply
8	672+175	1512	2.28	5.8	2.16	97.6%	Comply

Degree of compaction based on proctor test dated At:

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 6.4 %

Signature /

ELIASSA A. TITING HIRAN
Project : HSR
Address : 2011 - 2012 - 2013

IAS
INSTITUTIONAL ASSOCIATION
OF ARCHITECTS

Company Name : شركة مياه الزمخ
Project : Electric Express Train - HSR From Qous To Arment
Testing Date : 16/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 1.04
Report No. : 60

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	671+800	1807	2.24	6.4	2.10	95.1%	Comply
2	671+820	1600	2.29	6	2.16	97.6%	Comply
3	671+840	1630	2.26	5.8	2.13	96.5%	Comply
4	671+870	1415	2.32	5.6	2.19	99.3%	Comply
5	671+900	1283	2.24	5.5	2.13	96.3%	Comply
6	671+920	1477	2.27	5.5	2.15	97.3%	Comply
7	671+940	1503	2.29	5.5	2.18	98.4%	Comply
8	671+960	1620	2.22	5.5	2.10	95.0%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.24 gm/cm³ At optimum moisture content = 5.8 %

Signature /

FOR USE ONLY
BY THE CLIENT
DATE 16/11/2023

IAS
ACCREDITED

FOR USE ONLY
BY THE CLIENT
DATE 16/11/2023

Company Name : شركة ص.م.الرحمن
Project : Electric Express Train – HSR From Qous To Arمنت
Testing Date : 6/12/2023
Soil type : Upper Embankment
Location : ST From 672+640 To 672+780
Level : -0.75 M
Report No. : 70-2

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+660	1271.7	2.25	5.3	2.14	96.8	Comply
2	672+680	1099.3	2.23	5.5	2.11	95.6	Comply
3	672+700	1027.6	2.24	6.0	2.11	95.5	Comply
4	672+720	1391.0	2.24	6.0	2.11	95.5	Comply
5	672+740	1627.6	2.26	5.3	2.15	97.3	Comply
6	672+760	1629.7	2.32	5.5	2.20	99.7	Comply

Degree of compaction based on proctor test dated At

- Max. dry density = 2.21 gm/cm³
- At optimum moisture content = 5.8 %

Signature / ...

11/12/2023
10:11 AM
11/12/2023 10:11 AM



11/12/2023
10:11 AM
11/12/2023 10:11 AM



Department of Civil Engineering, University of Lagos
Akoka, Lagos State, Nigeria

Client's Name: Mr. J. O. Ogunniyi
Project: Building of a 4-story office building at Akoka, Lagos State
Location: Plot 1234, Akoka, Lagos State
Type of Work: Civil Engineering
Contract No.: C/1234/2023
Reporting Date: 15/02/2023
Reporting To: Mr. J. O. Ogunniyi

1.1.1. Description

Approximate area of the site: 10,000 m²

Site is suitable for construction of 4-story office building.

1.1.2. Test Results

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-1557.

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

Signature: _____

10/02/2023





California State Office of Highway Safety
 1515 North Main Street, Suite 100
 Sacramento, CA 95811

Source: *CEI* 1515 North Main Street

Project: *CEI* 1515 North Main Street - *CEI* 1515 North Main Street

Location: *CEI* 1515 North Main Street - *CEI* 1515 North Main Street

Type or Sample: *CEI* 1515 North Main Street

Testing Date: *CEI* 1515 North Main Street

Reporting Date: *CEI* 1515 North Main Street

Reporting ID: *CEI* 1515 North Main Street

RESULTS OF SIEVE ANALYSIS - *CEI* 1515 North Main Street

Sieve Size (mm)	Sieve Size (No.)	Passing %
50	7	98.2
37.5	13	92.5
25	1	87.2
19	4	74.0
12.5	2	69.1
9.5	3	63.8
4.75	4	57.2
2.00	10	42.8
0.425	40	25.2

CEI 1515 North Main Street

1515 North Main Street





Construction Engineering Institute
 10000 Highway 100, Suite 100, Houston, TX 77036
 Tel: 281-410-1000 Fax: 281-410-1001

Date: 10/1/03 Job No: 03-01-001
 Title: Soil Analysis Report for 03-01-001
 Location: 03-01-001 Soil Analysis Report
 Type of Sample: Soil Analysis Report
 Delivery Date: 10/1/03
 Reporting Date: 10/1/03
 Reporting To: 03-01-001

Materials finer than 75 μ m (No. 200) size
By washing ASTM D 1140.

Test	Results (%)
Percentage of material finer than Sieve Size 75 μ m (No. 200)	2.5

Signature (_____) _____

Company Name: *URS*
 Project: *San Francisco Bay Area Rapid Transit (BART) System*
 Location: *San Francisco, California*
 Type of Sample: *Soil Investigation*
 Delivery Date: *07/10/2013*
 Reporting Date: *07/10/2013*
 Reporting No.: *01-13*

**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: _____





Department of Civil Engineering
University of the Philippines - Diliman

Course/Year: CE 101 / 1st Year
 Project Title: Soil Classification
 Location: 2nd Floor, 2nd Floor, 2nd Floor
 Type of Sample: Soil Sample
 Laboratory No.: 11/10/2011
 Reporting Date: 11/10/2011
 Reporting To: N/A

Soil Classification

TEST	Results (%)	Limits according Project Spec		
Group Classification	(A-1)	(A-1)	(A-1)	(A-1)
2.00 mm (No. 10)	43.6	Max 50 %	Max 50 %	Max 50 %
0.425 mm (No. 40)	26.5	Max 30 %	Max 50 %	Max 50 %
0.075 mm (No. 200)	9.2	Max 15 %	Max 15 %	Max 15 %
Liquid Limit		Max 25 %	Max 25 %	Max 25 %
Plasticity Index		Max 10 %	Max 10 %	Max 10 %

The test results are 100% comply with specifications limits.

Signature: _____

11/10/2011

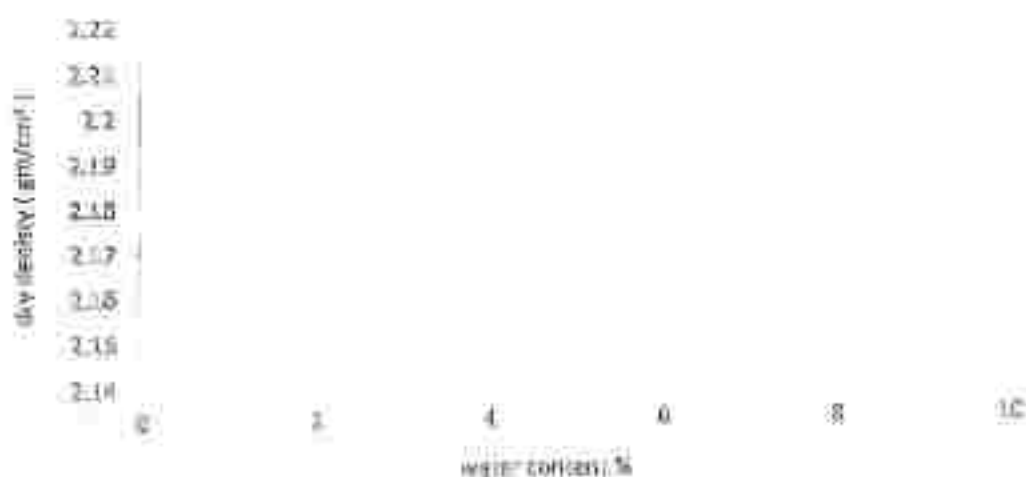
11/10/2011



California State University, Sacramento
 95834-4000
 (916) 276-1000

Sample No: 11-28-10-1-1
 Project: 2011-2012 Highway 202 Improvement Project
 Location: 2011-2012 Highway 202 Improvement Project
 Type of Sample: Soil Borehole Sample
 Testing Date: 11/10/2011
 Reporting Date: 11/15/2011
 Reporting To: 11-28-10-1-1

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



Area Dry Density (pcf) 122

Optimum Water Content (%) 12

Signature: _____

11-28-10-1-1





California Bearing Ratio (CBR) Test
 Standard Test Method T-193

Project No. 10-00000000

Section No. 10-00000000

Location 10-00000000

Type of Sample Soil Embankment

Delivery Date 10/10/00

Reporting Date 10/10/00

Reporting No. 10-00000000

Test Results of California Bearing Ratio on 10-00000000

ASTM D 1883

penetration		stress on piston (Mpa)
mm	inch	
0.64	0.025	0.41
1.27	0.050	1.47
1.91	0.075	2.49
2.54	0.100	3.44
3.18	0.125	4.36
3.81	0.150	5.17
4.45	0.175	5.78
5.08	0.200	6.04
6.35	0.250	6.14

CBR Result	Stress (Mpa)		CBR 100 %
At 9.5 inch (254 mm) penetration	St. Value	Sample results	95.5 %
	6.90	3.44	

Notes:

1. Attached graph shows relationship between stress and penetration magnitude.
2. The sample was compacted in dry density of 1.21 gm/cc
3. At = 95.5 % ultimate wet density.
4. Sample load = 50 Kg.

5. Test is for middle and lower embankments according to Section 10-00000000

Signature

10-00000000

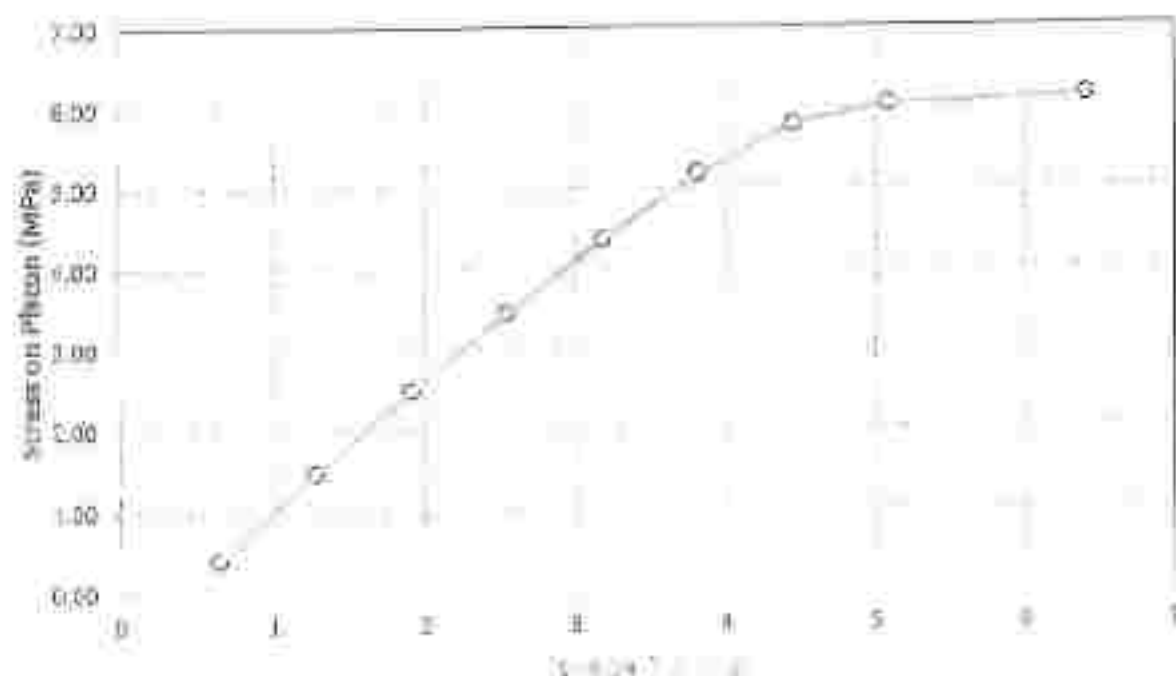
10-00000000

10-00000000

Contract No. CEI-10-30-000
 Project No. CEI-10-30-000 Subproject No. 000
 Section No. 000 Test No. 000
 Type of Sample Soil Embankment
 Testing Date 11/10/2000
 Reporting Date 11/10/2000
 Reporting To CEI

Load Penetration Curve of CBR Test

ASTM D-1585



CEI-10-30-000

CEI-10-30-000



Company Name : شركة عبد الرحمن
Project : Electric Express Train – HSR From Qom To Arman
Testing Date : 21/11/2023
Soil type : Upper Embankment
Location : ST From 671+980 To 672+180
Level : - 0.75 M
Report No. : 62

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	672+000	1587	2.22	5.3	2.11	95.5%	Comply
2	672+020	1690	2.28	5.5	2.16	97.9%	Comply
3	672+040	1821	2.27	5.5	2.15	97.4%	Comply
4	672+060	1862	2.28	6	2.15	97.5%	Comply
5	672+090	1646	2.29	6.4	2.15	97.3%	Comply
6	672+110	1678	2.32	5.5	2.20	99.6%	Comply
7	672+130	1560	2.22	5	2.12	95.8%	Comply
8	672+150	1403	2.25	5.3	2.14	96.7%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³ At optimum moisture content = 5.8 %

Signature /

Signature /
Date /
Signature /

IAS
ACCREDITED
ISO 9001:2015

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qous To Armanat
Testing Date : 21/11/2023
Soil type : Upper Embankment
Location : ST From 671+780 To 671+980
Level : - 0.75 M
Report No. : 61

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

Test #	Station	Test Hole Volume cm ³	Bulk Density gm ³ /cm ³	Moisture Content %	Dry Density (gm ³ /cm ³)	Degree of Compaction (%)	Acceptance
1	671+800	1340	2.24	5.5	2.12	96.0%	Comply
2	671+820	1312	2.29	5.5	2.17	98.1%	Comply
3	671+840	1505	2.32	5.8	2.19	99.1%	Comply
4	671+860	1587	2.25	5.8	2.12	96.1%	Comply
5	671+880	1440	2.24	5.3	2.12	96.1%	Comply
6	671+910	1426	2.21	5	2.11	95.4%	Comply
7	671+930	1542	2.25	5.5	2.13	96.4%	Comply
8	671+960	1676	2.27	5.5	2.15	97.2%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.21 gm/cm³ At optimum moisture content = 5.8 %

Signature / 

Supervisor
Engineer
Civil Engineer



Signature
Date



Consulting Engineering Bureau & Laboratories
مكتب محامل الاستشارات والاختبارات

Company Name : شركة عبد الرحمن
Project : Electric Express Train - HSR From Qouz To Armanat
Testing Date : 16/11/2023
Soil type : Upper Embankment
Location : ST From 671+980 To 672+180
Level : -1.04
Report No. : 60-2

Compaction test by using Sand - Cone Test Method
ASTM D- 1586

Test #	Station	Test Hole Volume cm ³	Bulk Density gm/ cm ³	Moisture Content %	Dry Density (gm/ cm ³)	Degree of Compaction (%)	Acceptance
1	672+020	1695	2.27	6.4	2.14	96.7%	Comply
2	672+040	1589	2.23	6	2.10	95.2%	Comply
3	672+060	1411	2.31	5.8	2.18	98.7%	Comply
4	672+080	1414	2.29	5.6	2.17	98.0%	Comply
5	672+100	1404	2.22	5.5	2.11	95.4%	Comply
6	672+120	1566	2.21	5.5	2.10	95.0%	Comply
7	672+140	1672	2.31	5.5	2.19	99.1%	Comply
8	672+160	1635	2.30	5.5	2.18	98.5%	Comply

Degree of compaction based on proctor test dated At

Max. dry density = 2.25 gm/cm³ At optimum moisture content = 6.8 %

Signature : 

PROJECT : Electric Express Train - HSR From Qouz To Armanat
Drawing No. :
DATE : 16/11/2023



DATE : 16/11/2023
TIME : 10:10 AM
PAGE : 1 OF 1

السيد المهندس / رئيس قطاع التنفيذ والمناطق

تحية طيبة وبعد ،،،،

نتشرف بأن نرفق لسيادتك عدد ١ مقايضة تقديرية معدلة لمشروع اعمال انشاء الجسر الترابي للقطار الكهربائي السريع (٦ اكتوبر - ابوسمبل) القطاع الخامس من الكم 693+533 الي 693+783 بطول 0.250 كم اعداد المكتب الاستشاري سبكتروم للاستشارات الهندسية وعلى مسئوليته تنفيذ / شركة عباد الرحمن للتنمية الزراعية والعقارية والمقاولات

برجاء التكرم بالعلم والتوجيه باللازم

وتفضلوا بقبول فائق التحية والاحترام،،

تحرير في ٢٠٢٣/١٢/

المرفقات / عدد (١) مقايضة





الهيئة العامة للطرق والكبارى

وزارة النقل

مقايمة تقديرية معدلة (جزية لنود الأعمال / جزية لأعمال الأتربة المرحلة الأولى)

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

القطاع الخامس من الكم ٦٢٩ + ١١٠,١٣ إلى الكم ٧١٥ + ٦٢٤,٦٣ بطول ٨٦,٥٢ كم

من إحداثى E ٤٨٩٩٢٩,٦٦٧١ و N ٢٨٧٤٢١٥,٥٦٧١

إلى إحداثى E ٤٤٠١٦٨,٦٥٢٢ و N ٢٨١٧٧٧٨,٣١٧٥

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

تنفيذ الشركة: / شركة عباد الرحمن للتنمية الزراعيه والعقاريه فئة : المسادسه بقيمة : مليون

من الكم ٦٩٣ + ٥٣٣ إلى الكم ٦٩٣ + ٧٨٣ بطول ٠,٢٥٠ كم

من إحداثى E ٤٥٩٧٣٥,٢٧٨١ و N ٢٨٢٧٥٤٣,٦٨٦٦

إلى إحداثى E ٤٥٨٨٤٨,٩٤٩٨ و N ٢٨٢٧٠٨٢,٠٤٥٢

قيمة المقايمة ١٩,٩٩٠,٨٥٥ مليون

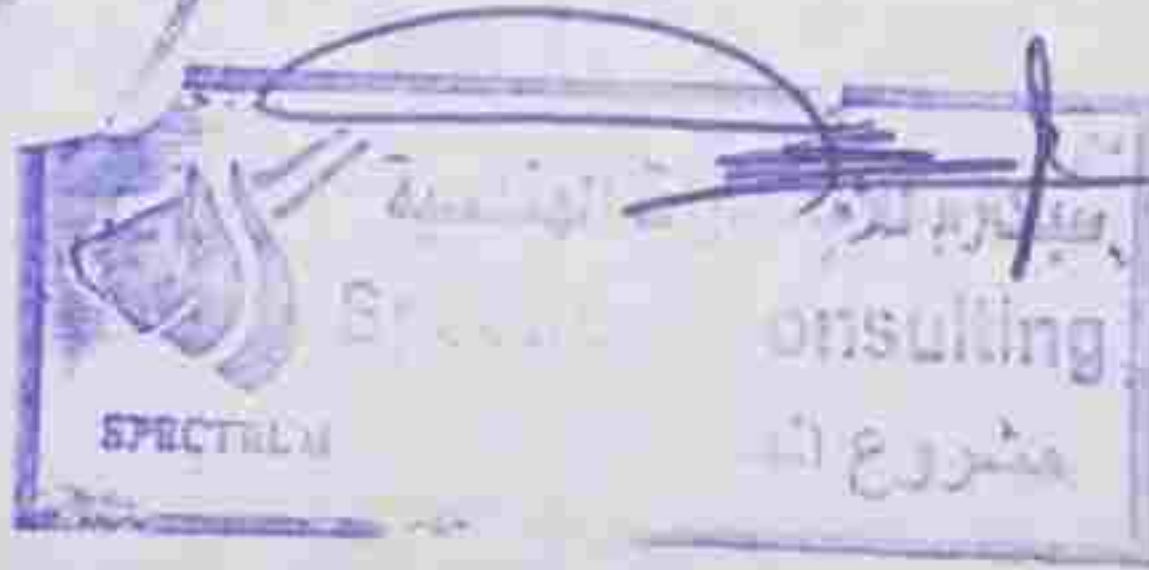


شركة عباد الرحمن

للتنمية الزراعية والعنارية والمساوالت
ب.ض. ٢٥٢/٦٥٦/٦٥٠ س.ت ١٥٤٢٥

المقاول

الإستشارى /



المنطقة الثامنة بقنا /



مقاييس جزئية معدلة



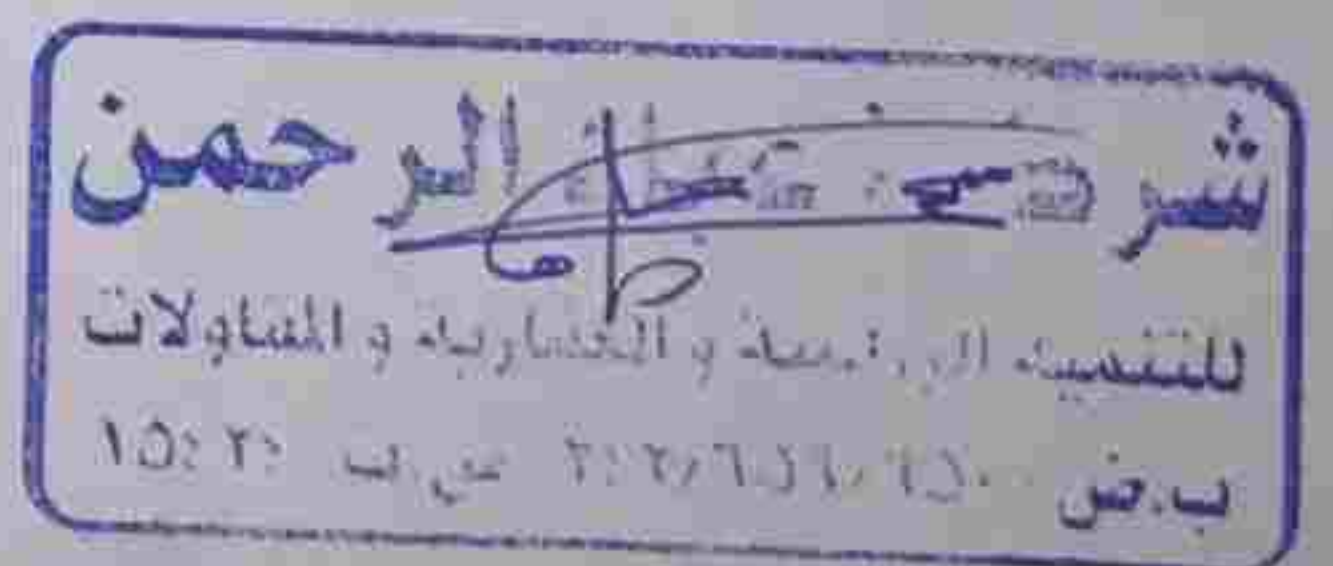
أعمال إنشاء الجسر الترابي للقطار الكهربائي السريع (أكتوبر / أوسمبل)

من محطة ١١٠.١٣ + ٦٢٩ حتى محطة ٦٢٤.٦٣ + ٧١٥ بطول ٨٦.٥١٤٥ كم

تنفيذ شركة / عباد الرحمن من محطة ٦٩٢+٥٣٣ الى ٦٩٣+٧٨٣ بطول ٠.٢٥٠ كم

أعمال (الإنارة والتطهير - الحفر - الردم - embankment - طبقة التأسيس - prepared subgrade - طبقة الأساس - subballast - التربة المسلحة - البلاطات الخرسانية / الرصف الخرساني)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالي
1 أعمال الإنارة والتطهير					
1-1	بالمتر المسطح أعمال تطهير الموقع من الأشجار والمزروعات والمخلفات في مناطق ذات الطبيعة الزراعية الكثيفة يعمق حتى ٣٠ سم و التخلص منها بالمقالب العمومية وذلك لمسافة حتى ٥٠٠ متر تمهيداً لأعمال الرفع المساحي لكامل حدود المشروع طبقاً للشروط والمواصفات وتعليمات المهندس المشرف. يتم احتساب علاوة ٠.٣٠ جنيه لكل ١ كم.	م ^٢	١٢	٦.٠٠	٧٢
2-1	المتر المسطح أعمال تطهير الموقع من الأشجار والمزروعات والمخلفات و التي يستلزم لها استخدام التفتيش باستخدام (اللودر أو البلدوزر) في مناطق ذات الطبيعة الزراعية الكثيفة و البند يشمل التطهير وازالة الجذور بعمق لا يقل عن ٣٠ سم والتخلص منها بالمقالب العمومية وذلك لمسافة ٥٠٠ متر. تمهيداً لأعمال الرفع المساحي لكامل حدود المشروع طبقاً للشروط والمواصفات وتعليمات المهندس المشرف - علاوة ٠.٢ جنيه لكل كم زيادة.	م ^٢	١٠	١١.٠٠	١١٠
3-1	بالمتر المكعب أعمال تكسير وإزالة المسطحات المنهارة بالرصف الحالي في الأماكن التي يحددها المهندس المشرف ونقل ناتج التكسير خارج الموقع ومتوسط مسافة النقل حتى ١٠ كم وعمل ما يلزم لنهو العمل طبقاً لكراسة الشروط والمواصفات وتعليمات المهندس المشرف. وفي حالة زيادة مسافة نقل ناتج التكسير عن ١٠ كم من محور الطريق يتم حساب ١ جنيه لكل متر الزيادة أو النقص.	م ^٣	١٠	٦١.٠٠	٦١٠
4-1	العدد ازالة اشجار من مسار الطريق و التخلص منها على الا يقل قطر الشجرة عن ٣٠ سم وازالة الجذور بالكامل ونقلها خارج الموقع طبقاً لتعليمات المهندس المشرف.	العدد	١٠	٧٥.٠٠	٧٥٠
5-1	العدد ازالة اشجار ونخيل بارتفاع لا يقل عن ٤ متر من مسار الطريق و التخلص منها على ان الا يقل القطر عن ٣٠ سم وازالة الجذور بالكامل ونقلها خارج الموقع طبقاً لتعليمات المهندس المشرف.	العدد	١٠	٤٠٠.٠٠	٤٠٠٠
2 أعمال 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 جافة (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 مشتعلات طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة اجنية /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	٣٠.٠٠٠	٢٣.٠٠	٦٩٠.٠٠٠
	علاوة مسافة النقل ١ كم	م ^٣	٥٩٩	١.١٠	٦٥٩
	علاوة زيادة السولار	م ^٣	٣٠.٠٠٠	٠.٦٠	١٨٠.٠٠٠
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 جافة (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 مشتعلات طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. -علاوة اجنية /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	٣٠.٠٠٠	٢٦.٠٠	٧٨٠.٠٠٠
	علاوة مسافة النقل ١ كم	م ^٣	٤٨٦	١.١٠	٥٣٥
	علاوة زيادة السولار	م ^٣	٣٠.٠٠٠	٠.٧٠	٢١٠.٠٠٠
3-2	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية شديدة المتماسكة (طفلة متحجرة أو...) عدا التربة الصخرية (باستخدام البلدوزر) وتسوية السطح بالآلات التسوية والرش بالمياه الأصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافة (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 مشتعلات طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف. يتم تحديد نوع التربة طبقاً لمعدلات التنفيذ باستخدام البلدوزر والتي تحدد بمعرفة المنطقة المشرفة والاستشاري. -علاوة اجنية /كم لمسافة نقل ناتج الحفر وتصبح ١.١ جنيه /كم ابتداء من ٤/٥/٢٠٢٣ -علاوة زيادة السولار للبند ٠.٨ جنيه /م ^٣ ابتداء من ٤/٥/٢٠٢٣	م ^٣	٤١.٠٠٠	٣١.٠٠	١٢٧١.٠٠٠
	علاوة مسافة النقل ١ كم	م ^٣	١.٠٠١	١.١٠	١.١٠١
	علاوة زيادة السولار	م ^٣	٤١.٠٠٠	٠.٨٠	٣٢.٨٠٠





مقايسة جزئية معدلة



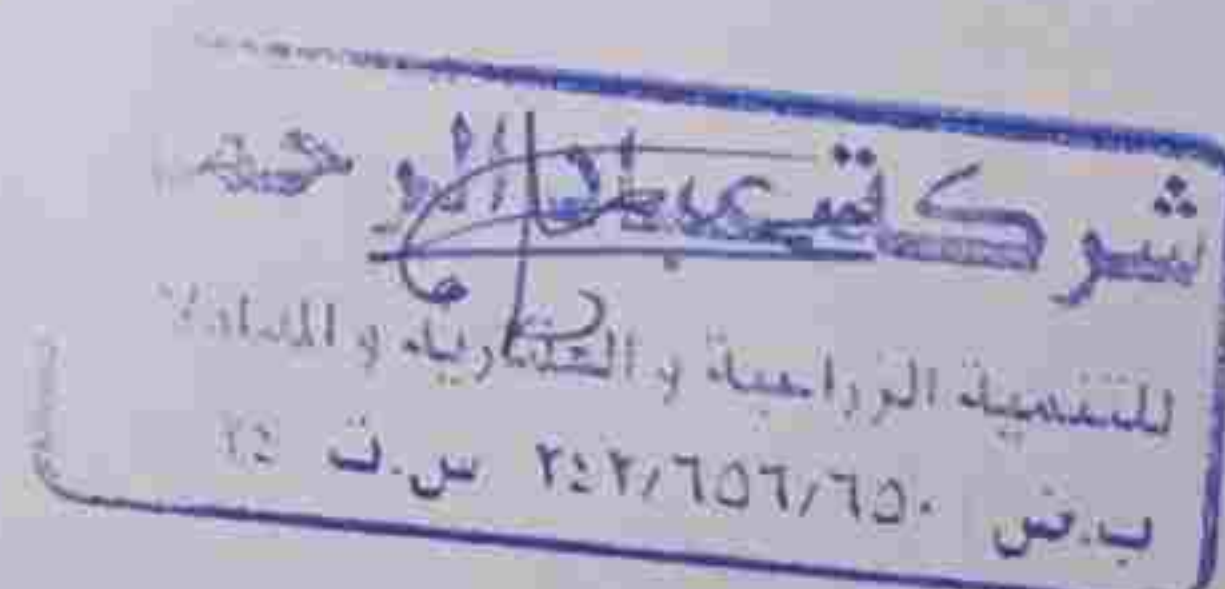
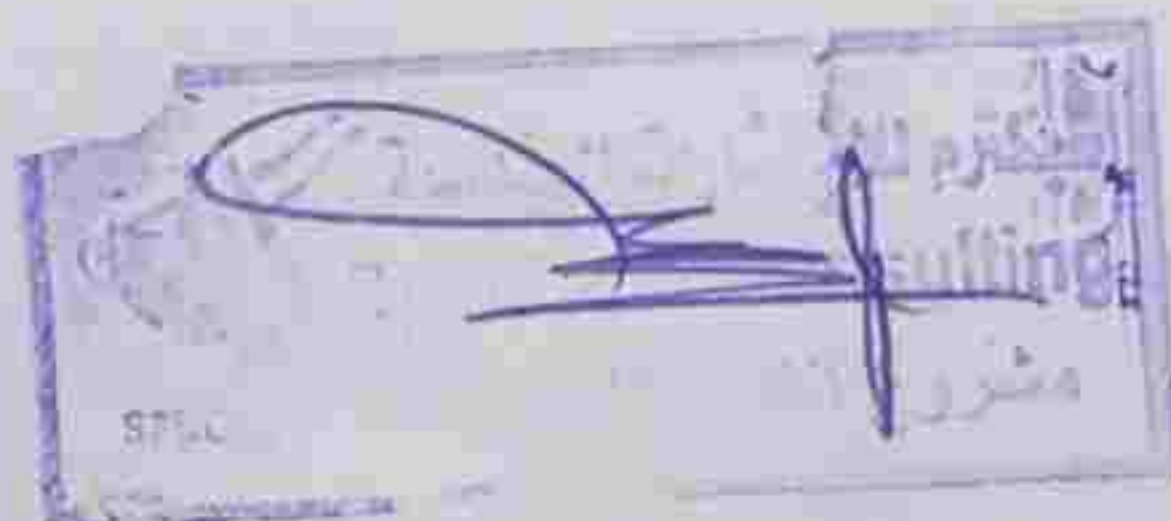
أعمال إنشاء الجسر القرائي للقطار الكهربائي السريع (أكتوبر / أبو سبيل)

من محطة ١١٠.١٣ + ٦٢٩ حتى محطة ٦٢٤.٦٣ + ٧١٥ بطول ٨٦.٥١٤٥ كم

تنفيذ شركة / عباد الرحمن من محطة ٦٩٢+٥٣٣ الي ٦٩٣+٧٨٣ بطول ٠.٢٥٠ كم

أعمال (الازالة والتطهير -الحفر -الردم-embankment- طبقة التأسيس -prepared subgrade- طبقة الأساس -subballast- التربة المسلحة- البلاطات الخرسانية /الوصف الخرساني)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الوحدة	الإجمالي
4-2	بالمتر المكعب أعمال حفر بالمعدات الميكانيكية في تربة صخرية				
	ذات إجهاد (٢٠٠-١٠٠) كجم/سم ^٢		١	٦٠,٠٠٠	
	ذات إجهاد (٢٠٠-١٠٠) كجم/سم ^٢ من يناير ٢٠٢٣		١٥٠,٠٠٠	٦٢,٠٠٠	
	علاوة ١,٦ جنيه/م ^٣ لارتفاع السولار وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣		١	٧٥,٠٠٠	
	ذات إجهاد (٢٠٠-٢٠٠) كجم/سم ^٢		٢٠٠,٠٠٠	٧٥,٠٠٠	
	ذات إجهاد (٢٠٠-٢٠٠) كجم/سم ^٢ من يناير ٢٠٢٣		١	٨٢,٠٠٠	
	علاوة ١,٩ جنيه/م ^٣ لارتفاع السولار وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣		٦٧,٤٣٤	٨٨,٠٠٠	
	ذات إجهاد (٤٠٠-٣٠٠) كجم/سم ^٢		١	٦,٠٠٠	
	ذات إجهاد (٤٠٠-٣٠٠) كجم/سم ^٢ من يناير ٢٠٢٣		٩٠,٠٠٠	٧,٠٠٠	
	علاوة زيادة إجهاد كل ١٠٠ كجم/سم ^٢ لكل متر مكعب				
5-2	علاوة زيادة إجهاد كل ١٠٠ كجم/سم ^٢ لكل متر مكعب وذلك للكميات المنفذة بعد ٤/٥/٢٠٢٣				
	ومحمل على البند الآتي				
	١- تحميل ونقل ناتج الحفر لمسافة لا تقل عن ٥٠٠ متر				
	٢- ارنكة الميول الجانبية باستخدام المعدات الميكانيكية				
	٣- توريد تربة مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسمك لا يزيد عن ٢٥ سم لاستكمال المنسوب				
	التصميمي لتشكيل الجسر والاكثاف (نسبة تحمل كاليفورنيا حتى ١٠ %) ورشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافة (٩٥ % من الكثافة الجافة القصوى). ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.				
	بالمتر المكعب أعمال تخريم ونسف طبقاً للمناسيب التصميمية في تربة صخرية صلبة (ذات إجهاد يزيد عن ١٠٠ كجم/سم ^٢) والحساب طبقاً لمحاضر النصف على أن يتم تحميل ونقل ناتج النصف لمسافة لا تقل عن ٥٠٠ متر من محور الطريق وتوريد طبقة من الزلط أو السن المتدرج مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسمك لا يزيد عن ٢٥ سم لاستكمال المنسوب التصميمي لتشكيل الجسر والاكثاف (نسبة تحمل كاليفورنيا لا تقل عن ١٥ %) ورشها بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافة (لا تقل عن ٩٥ % من الكثافة الجافة القصوى) مع اتباع كافة الشروط والمواصفات المعتمدة من قبل استشاري المشروع ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.				
	السعر لا يشمل قيمة المتعجلات				
	علاوة ١ جنيه/م ^٣ لمسافة نقل ناتج النصف وتصبح ١,١ جنيه ابتداء من ٤-٥-٢٠٢٣				
6-2	بالمتر المكعب أعمال حفر باستخدام المعدات الميكانيكية في السفو وتسوية السطح بالآلات التسوية والرش بالمياه الاصولية للوصول الى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول الى أقصى كثافة جافة (٩٥ % من الكثافة الجافة القصوى) ومحمل على البند تحميل ونقل الأتربة الزائدة لمسافة ١,٥ كم من محور الطريق. والفئة تشمل استخدام المياه في تثبيت السفو و اعداد منقعات على السفو لحركة المعدات. ويتم التنفيذ طبقاً للمناسيب التصميمية والقطاعات العرضية النموذجية والرسومات التفصيلية المعتمدة والبند بجميع مشتملاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكبارى وتعليمات المهندس المشرف.				
	علاوة ١ جنيه/م ^٣ لمسافة نقل ناتج الحفر وتصبح ١,١ جنيه/م ^٣ ابتداء من ٤ / ٥ / ٢٠٢٣م				
	علاوة زيادة السولار اجنية ابتداء من ٤ / ٥ / ٢٠٢٣م				
	علاوة ٢ جنيه/م ^٣ في حالة توريد تربة لفرشها على طبقة السفو لامكانية تحريك المعدات وذلك في حالة الارض الغير ثابتة				
	نفس البند (٢-٦) ولكن للكميات المنفذة بعد يناير ٢٠٢٣				





مقاييس جزئية 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 / عباد الرحمن من محطة ٦٩٢+٥٣٣ إلى ٦٩٣+٧٨٣ بطول ٠.٢٥٠ كم

أعمال: (الإنارة والتطهير - الحفر - الردم - embankment - طبقة التأسيس - prepared subgrade - طبقة الأساس - subballast - التربة المملحة - البلاطات الخرسانية / الرصف الخرساني)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالي
أعمال الردم Embankment					
1-3	أعمال تحميل وتوريد ونقل التربة مطابقة للمواصفات وتشغيلها باستخدام آلات التسوية بسلك لا يزيد عن ٥٠ سم حتى منسوب (٢ متر) أسفل منسوب القرمه و بسلك لا يزيد عن ٢٥ سم أعلى من منسوب (٢٠ متر) من منسوب القرمه لاستكمال المنسوب التصميمي لتشكيل الجسر والأكلاف (نسبة تحمل كاليفورنيا حتى ١٥%) ورشها بالمياه الأصولية 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 مشتعلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف. - في حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥% بحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١%. - مسافة النقل حتى ٢ كم ويتم احتساب علاوة ١.٤ جنيه لكل كم بالزيادة أو النقصان وتصبح ١.٥ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر يشمل عمل تشوينات وتخطيط واختبارات ونقل لموقع العمل حتى مسافة ٢ كم. - علاوة زيادة السولار ١.٩ جنيه /كم ٣ ابتداء من ٤/٥/٢٠٢٣. - السعر لا يشمل قيمة المادة المحجوبة.	م ^٣	١٣٠.٠٠٠	٦٠.٠٠٠	٧٨٠٠.٠٠٠
2-3	أعمال تحميل وتوريد ونقل التربة مطابقة للمواصفات وذلك باستخدام ناتج الحفر الصخري الصالح وذلك طبقاً لتعليمات المهندس المشرف والتدرج المطلوب باستخدام الكاسور ذلك بعد التأكيد من التدرج والمقاسات المطلوبة لاختبار المناخل طبقاً لتوصيف الاستشاري وتشغيلها باستخدام آلات التسوية بسلك لا يزيد عن ٥٠ سم حتى منسوب ٢٠ متر وسلك لا يزيد عن ٢٥ سم لاستكمال المنسوب التصميمي لتشكيل الجسر والأكلاف (نسبة تحمل كاليفورنيا لا تقل ١٥%) ورشها بالمياه الأصولية 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 مشتعلاته طبقاً لأصول الصناعة ومواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف. - في حالة طلب جهاز الإشراف زيادة نسبة الدمك عن ٩٥% بحسب زيادة ١ جنيه على زيادة نسبة الدمك لكل ١%. - مسافة النقل حتى ٢ كم ويتم احتساب علاوة ١.٤ جنيه لكل كم بالزيادة أو النقصان وتصبح ١.٥ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر يشمل عمل تشوينات وتخطيط واختبارات ونقل لموقع العمل حتى مسافة ٢ كم. - السعر يشمل مسافة نقل ناتج الحفر وتغذية الكاسور والنقل إلى موقع القطاع بمتوسط مسافة ٣ كم. - علاوة زيادة السولار ١.٩ جنيه /كم ٣ ابتداء من ٤/٥/٢٠٢٣.	م ^٣	١٠٠	١١٠.٠٠٠	١١٠٠٠.٠٠٠
طبقة تأسيس Prepared Subgrade					
1-4	بالمتر المكعب أعمال توريد وفرش طبقة تأسيس (Prepared Subgrade) من الأحجار الصلبة المنتزجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات ١٠٠ مم وألا تزيد نسبة المار من متخل ٢٠٠ عن ١٢% والتدرج الوارد بالاشتراطات الخاصة بالمسحوق لا تقل نسبة تحمل كاليفورنيا عن ٢٥% وألا تزيد نسبة الفقد بجهاز لوس أنجلوس عن ٣٠% وألا يزيد الامتصاص عن ١٥% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ٨٠ ميجاباسكال ويتم فردها على طبقتين باستخدام آلات التسوية الحديثة على أن لا يزيد سمك الطبقة بعد تمام الدمك عن ٢٥ سم ورشها بالمياه الأصولية للوصول إلى نسبة الرطوبة المطلوبة والدمك الجيد بالهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن ٩٥% من الكثافة الجافة القصوى) والفئة تشمل إجراء التجارب المعملية والحقلية ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية والبند بجميع مشتعلاته 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 وتصبح ١.٣ جنيه /كم ابتداء من ٤/٥/٢٠٢٣.	م ^٣	١٠٠	١٣٠.٠٠٠	١٣٠٠٠.٠٠٠
	مسافة نقل ١٠٠ كم	م ^٣	١٠٠	٢٥.٠٠٠	٢٥٠٠.٠٠٠
	كارتة توريد الأساس	م ^٣	١٠٠	١.٨٠	١٨٠.٠٠٠
	علاوة زيادة السولار	م ^٣	١٠٠		
طبقات الأساس Subballast					
1-5	بالمتر المكعب أعمال توريد وفرش طبقة أساس من الأحجار الصلبة المنتزجة ناتج تكسير الكسارات والمطابقة للمواصفات وأقصى حجم للحبيبات ما بين ٣١.٥ مم إلى ٤٠ مم وألا تزيد نسبة المار من متخل ٢٠٠ عن ٥% والتدرج الوارد بالاشتراطات الخاصة بالمسحوق لا تقل نسبة تحمل كاليفورنيا عن ٨٠% وألا يقل معامل المرونة (Ev2) من تجربة لوح التحميل عن ١٢٠ ميجاباسكال وألا يزيد نسبة الفقد بجهاز لوس أنجلوس عن ٣٠% وألا يزيد الامتصاص عن ١٥% ويتم فردها 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 بالهراسات للوصول إلى أقصى كثافة جافة قصوى (لا تقل عن ١٠٠% من الكثافة الجافة القصوى) والفئة تشمل إجراء التجارب المعملية والحقلية ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتعلاته 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 وتصبح ١.٣ جنيه /كم ابتداء من ٤/٥/٢٠٢٣. - السعر لا يشمل قيمة المواد المحجوبة. - علاوة زيادة السولار ١.٨ جنيه /كم ابتداء من ٤/٥/٢٠٢٣.	م ^٣	١٠٠	١٣٥.٠٠٠	١٣٥٠٠.٠٠٠
	مسافة نقل ١٠٠ كم	م ^٣	١٠٠	٢٥.٠٠٠	٢٥٠٠.٠٠٠
	كارتة توريد الأساس	م ^٣	١٠٠	١.٨٠	١٨٠.٠٠٠
	علاوة زيادة السولار	م ^٣	١٠٠		

موقع العمل

شركة عباد الرحمن
للتنفيذ والدراسة والبناء
١٢٥٦/٦٥٠
١٢٥٦/٦٥٠



مقايسة جزئية معدلة



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

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

تنفيذ شركة / عباد الرحمن من محطة ٦٩٢+٥٣٣ الي ٦٩٣+٧٨٣ بطول ٠,٢٥٠ كم

أعمال (الإنارة والتنظير - الحفر - الردم - embankment - طبقة التأسيس prepared subgrade - طبقة الاساس subballast - التربة المملحة - البلاطات الخرسانية / الرصف الخرساني)

رقم البند	بيان الأعمال	الوحدة	الكمية	سعر الفئة	الاجمالي
6	أعمال التربة المملحة				
1-6	بالمتر مسطح توريد وتركيب طبقة من التسيخ الصناعي جيوتكستائل مستورد التداخل لا يقل عن ١٠% ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتعلاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	٢م	١	٣١,٠٠٠	٣١
1-1-6	ذات وزن لا يقل عن ٢٠٠ جم/م ^٢	٢م	١	٤٣,٠٠٠	٤٣
2-1-6	ذات وزن لا يقل عن ٣٠٠ جم/م ^٢	٢م	١	٦٠,٠٠٠	٦٠
3-1-6	ذات وزن لا يقل عن ٤٠٠ جم/م ^٢	٢م	١		
2-6	بالمتر مسطح توريد وتركيب طبقة من التسيخ الصناعي جيوجريد مستورد التداخل لا يقل عن ١٠% ويتم التنفيذ طبقاً لأصول الصناعة والرسومات التفصيلية المعتمدة والبند بجميع مشتعلاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف	٢م	١	٤٤,٠٠٠	٤٤
1-2-6	ذات قوة شد ٢٠ ك. نيوتن في الاتجاهين	٢م	١	٤٧,٠٠٠	٤٧
2-2-6	ذات قوة شد ٣٠ ك. نيوتن في الاتجاهين	٢م	١		
7	البلاطات الخرسانية / الرصف الخرساني				
1-7	بالمتر المكعب اصصال توريد وصب خرسانة عادية سمك ١٥ سم لإرتفاع ١٠ متر رأسي لحماية الأكتاف والميول الجانبية تتكون من ٣م ٠,٨ من دولوميت متدرج + ٣م ٠,٤ رمل حرش والإضافات طبقاً لتعليمات الاستشاري (فيير+سبكا) على أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم (بالفاصل) بسمك ٢ سم طبقاً لتعليمات الاستشاري (فيير+سبكا) 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 مشتعلاته 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)	٢م	١٠٠	٤٣٣,٠٠٠	٤٣,٣٠٠
2-7	بالمتر المكعب اصصال توريد وصب خرسانة عادية لتنفيذ قتمه سفليه وعلويه للاكتاف والميول الجانبية تتكون من ٣م ٠,٨ من دولوميت متدرج + ٣م ٠,٤ رمل حرش والإضافات طبقاً لتعليمات الاستشاري (فيير+سبكا) على أن يكون السن نظيف ومغسول والرمل خالي من الشوائب والطفلة والأملاح والمواد الغريبة مع وضع فوم (بالفاصل) بسمك ٢ سم طبقاً لتعليمات الاستشاري (فيير+سبكا) 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 مشتعلاته طبقاً لمواصفات الهيئة العامة للطرق والكباري وتعليمات المهندس المشرف.	٢م	١٠٠	٢,٦٨٥,٠٠٠	٢٦٨,٥٠٠
	الاجمالي				١٩,٩٩٠,٨٥٥



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

مدير المشروع (الاستشاري)
المهندس /
التوقيع

مهندس الشركة المنفذة
المهندس /
التوقيع

شركة المصالح
للتنفيذ والدراسات
٢٠٢٠/٦٥٦/٦٥٠
١٠٠٠

693+400

693+420

693+440

693+460

693+480

693+500

693+520

693+540

217 693+560

693+580

693+600

693+620

693+640

693+660

693+680

693+700

693+720

693+740

693+760

693+780

693+800

693+820

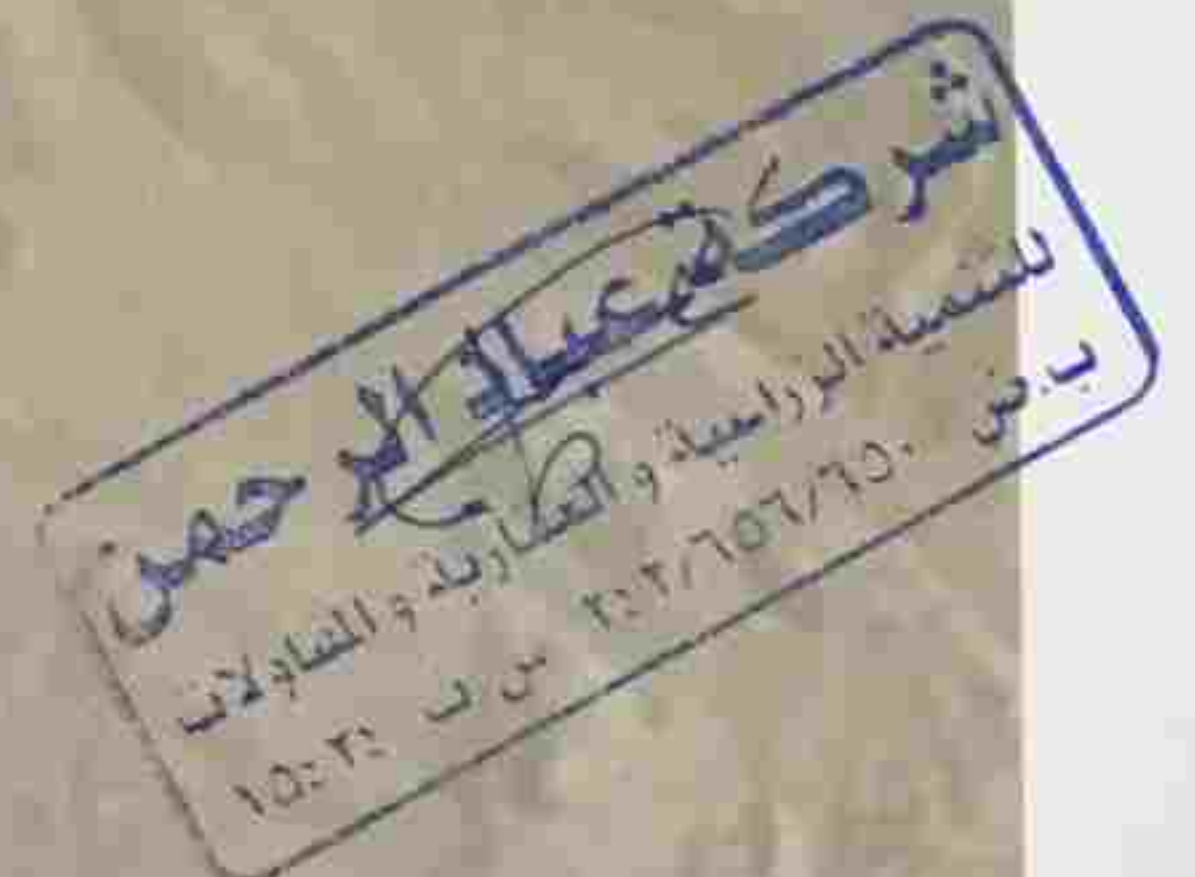
693+840

693+860

693+880

693+900 + 218

693+920



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