

**ISOTOP Ltd.**

**Facsimile Message**

<b>To:</b>	Gosh Atzion Development Co./ Mr. Ramli Batsal'el
<b>From:</b>	Bar-Osher Alegat
<b>Subject:</b>	CBR test results, with and without the solution.
<b>Date:</b>	

Attached to this fax cover sheet the test results certificates for the CBR of:

- Base course from Crushed stone without solution: Certificate # 2031-9
  - Base course from Crushed stone with solution: Certificate # 2032-9
- The solution concentration was 1/100.

Please note the following, by using the solution the results were significantly higher from those results in which the solution was not used. This means that this solution increased significantly the strength of the material.

# The ISRAELI INSTITUTE of STANDARDS

INVOICE # 8311304915

**Details:**

**Client Name:** New Rodos Ltd.

**Address:** Tal Hay-9 Jerusalem

**Date of test requested:** 25-06-2003

**Spervisor:** Vivian Glazer

**The sample taken by :** The ISRAELI INSTITUTE of STANDARDS

**Received at the Lab:** 07-07-2003

**Contractor:** New Rodos Ltd.

**Client Name:** New Rodos Ltd.

**Site Location:** ALON SHAVOT

**INVOICE FOR TESTING THE FOLLOWING:**

Two samples of soil from " Alon Shavot Site"

**Test Required:**

Determinig the influence on the stabilizing solution ( ENZIMA) of the CBR % Values.

This certificate includes 7 pages of testing results. Page 1 shall be read in conjunction with the other 6 Pages .

The Test result are attached to this page.

1-

Accoring to the client's request, the samples were socked in water for addintional 24 hours to the 96 Hours required by the standard.

2- The test

results: Adding the stabilizing solution " ENZIMA" to the soil ( type A-2-7) increased the value of the CBR by 20% ( the quantity of the solution added was determend by New Rodos' Company Specifications.

Testing Eng.  
Grigori Beider

Head of the soil and road departement  
Dr. David Shtokelberg

Jerusalem  
30-06-2003

# The ISRAELI INSTITUTE of STANDARDS

INVOICE # 8311304426

**Details:**

**Client Name:** New Rodos Ltd.

**Address:** Tal Hay-9 Jerusalem

**Date of test requested:** 23-06-2003

**The sample taken by :** The ISRAELI INSTITUTE of STANDARDS

**Received at the Lab:** 24-06-2003

**Contractor:** New Rodos Ltd.

**Client Name:** New Rodos Ltd.

**Site Location:** Aliezer settlement- security road

**INVOICE FOR TESTING THE FOLLOWING:**

**A segment of Security Road in Ali'Ezer Settlement in which the soil was improved by adding the "NRZYMA-Enzin" to it.**

**Test Required:**

**Determinig the CBR % using south african penetrating rod, according to Dr's Livna empirical equiation.**

**This certificate includes 2 pages of testing results. Page 1 shall be read in conjunction with Page 2.**

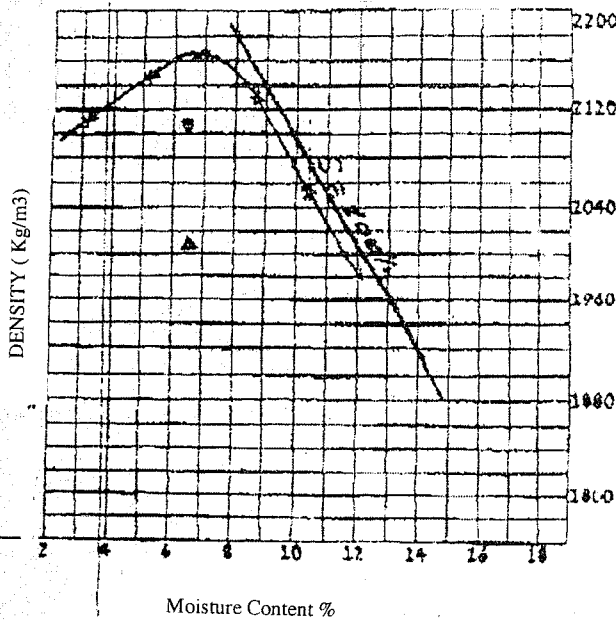
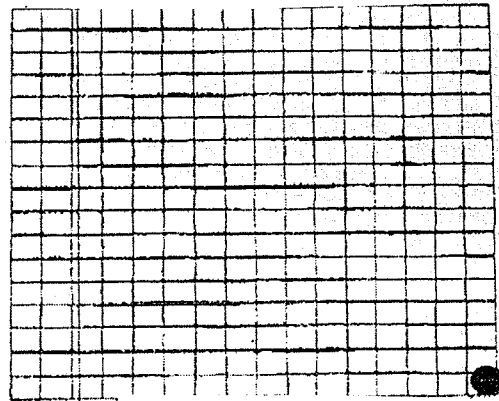
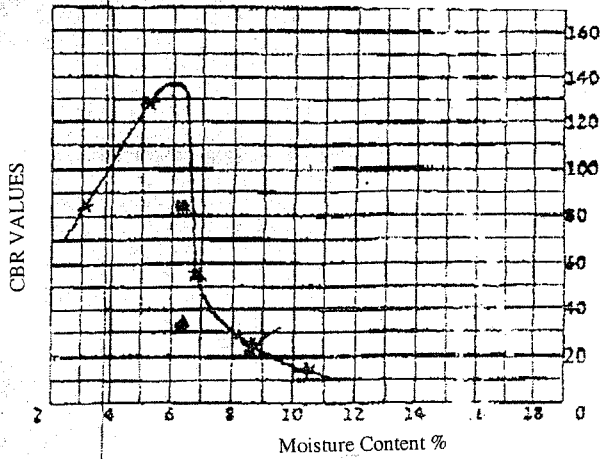
**The Test result are attached to this page.**

Testing Eng.  
Grigori Beider

Head of the soil and road departement  
Dr. David Shtokelberg

Jerusalem  
30-06-2003

This page is a part of the Certificate # 2031-9 (California Bearing Ratio-CBR %)



Material Description: Crushed stone.  
 Sample #: 1- sample was prepared according to the Construction Specifications - Moistening Method-water.

Sample Diameter: 6", Height 4.5"  
 Hammer of 10 lbs  
 Falling Height: 18"  
 50 compaction blows/layer: x  
 25 compaction blows/layer:  
 10 compaction blows/layer:  
 Maximum Density: 2165  
 Optimum moisture: 0.6  
 Actual relative weight: 2.6  
 Liquid limit: 21  
 Plasticity index: 5  
 Sand equivalent rate: 27  
 Load during penetration and soaking : 20 lbs  
 Saturation from top to bottom: 9.5 Hrs  
 CBR rates at the penetration depths:0.2"

Owner: Gosh Atzion development Company

This certificate includes two pages, and this certificate refers to the material samples that were tested only.

Date: 06-11-2000

Prepared by: Alex Ktakob

Approved By: Eng. Gadi Liskowitz.

# ISOTOP LTD.

## California Bearing Ratio-CBR % Testing Certificate No. 2031-9

Checking the Compliance with ASTM-D-1883-73.

Preparation of the sample according to: D-1557-83, Method D.

Agreement No.: 120193

Owner name: the company for Gosh Atzion Development

Material source: Construction site.

Sample No.: 1 (the sample was taken according to the Israeli standards for construction- type of socking- in water).

Material description: Crushed stones.

The sample was taken by: the testing lab.

Test #	# of hitting/layer	Dry density Kg/m <sup>3</sup>	Water Contents %			Load	settlement and swelling after 4 days-%	Fixed CBR	
			Starting %	Total	Highest %			at 0.1"	at 0.2"
1	56	2113	3.1	7.9	9.2	20	6	77.6	83.5
2	56	2143	5.1	7.5	8.1	20	0	128.8	128.8
3	56	2162	6.9	7.6	7.9	20	0	41	54.6
4	56	2151	8.7	8.4	8.2	20	0	6.7	22.2
5	56	2056	10.9	9	8.4	20	-0.2	11.1	14.9
6	25	2100	6.4	7.7	7	20	-0.1	61.4	81.9
7	10	2010	6.4	8.9	8.7	20	-0.4	26.6	32.8

Checking compliance with the standards requirements:

LOS ANGELES Abrasion test according to: ASTM C 131

Sieve analysis: C236-81, C117-80, D 1140-54(71), D 422-63(72).

Atterberg Limits: D4318-83

Sieve designation	3"	1.5"	¾"	#4	#20	#40	#200
% passing	100	95	72	60	42	24	17

Liquid Limit (L.L.)= 21 Plasticity Limit (P.L.) = 16 Plasticity Index (P.I.)= 5

Actual weight= 2.8 Sand equivalent=27 Classification: A-1-b

This certificate includes two pages, and this certificate refers to the material samples that were tested only.

Date: 06-11-2000

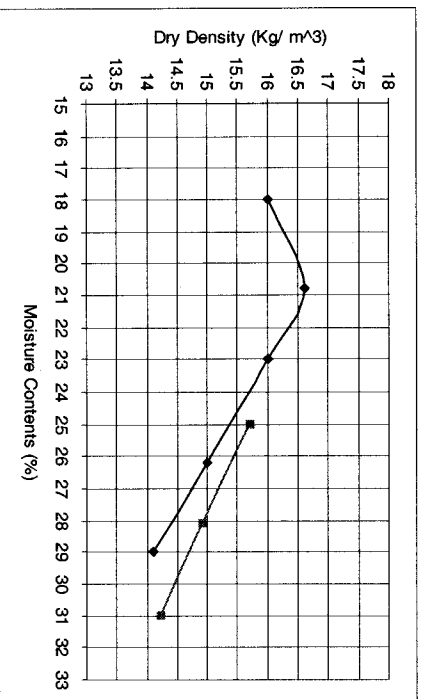
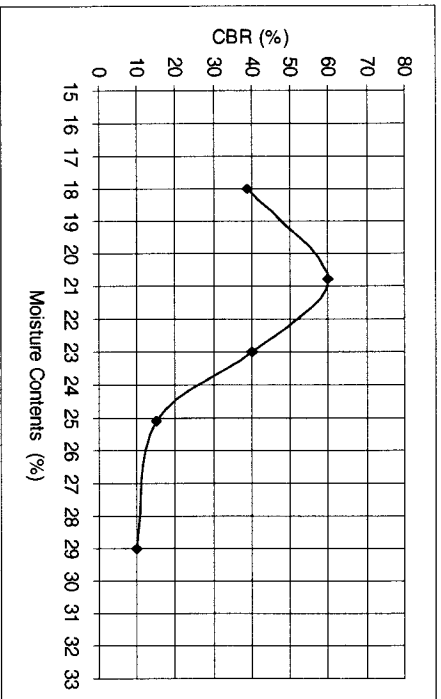
Prepared by: Alex Krakob

Approved By: Eng. Gadi Liskowitz.

Page 1

# The ISRAELI INSTITUTE of STANDARDS.

A graph that shows the testing results for CBR for soil and aggregates compacted in the Lab.



Maximum density ( $\gamma_d$  Kg/M<sup>3</sup>) : 1660  
Optimum Moisture: ( $W_{opt}$  %) : 20.3

1690 Kg/M<sup>3</sup>  
Relative weight (Gs) : 2.32 ( tested



# ISOTOP Ltd.

## Soil And Road Laboratory Inductive testings for Materials in the Lab

Testing Report # 10514113

**Agreement #:** 145477/1  
**Client Name:** New Rodos Ltd.  
**Client Address:** P.O Box 495- Alon Shavot, 90433  
**Site Name:**  
**Material Type:** Natural  
**Material Description :** aggregates, sand and clay.  
**Material origin:** Delivered by the Client.  
**Request # :** 105-00728

**Date of taking the sample:** 26-05-2003

**Sample taken by :** Client

ISOTOP SPEC	Character tested	UNIT	Specs Requirement		Test Results	Compliance to the specs	Test Conductor
			Seives with square openings mm	% passing by weight			
6-020	Ranges of aggregate gradation in % passing by weight through certain sieves in mm		38.1	No Requirement	100		Shahar + Avi Noam
			25	No Requirement	91		
			19	No Requirement	87		
			9.5	No Requirement	80		
			4.75	No Requirement	74		
			2	No Requirement	70		
			0.425	No Requirement	62		
			0.075	No Requirement	48		
				No Requirement	A-7-6(6)		
				No Requirement	GC		
6-038	Siol classification according to AASHTO						Shahar + Avi Noam
	Uniform classification						Shahar + Avi Noam
6-024	Liquid Limit	%			42		Avi Noam Karo
6-024	Plasticity scale	%			19		Avi Noam Karo

Note: The type of tests done were required by the Client.

28-05-2003

Authorized Eng. Gadi Likowitz  
 Test was done in Jerusalem Branch of institute  
 Test were done by: Shahar and Avi Noam

23-07-2003