Treatment of Recycled Pavement Aggregates with the EMC SQUARED® System

Aggregate materials incorporating asphalt millings and crushed concrete

Port of Los Angeles - Pier 400 Project
Los Angeles, California

The EMC SQUARED System was selected for stabilization of the construction haul roads for this major facility expansion project. The stabilized recycled pavement aggregate materials (known locally as Crushed Miscellaneous Base, or CMB) provided running surfaces for construction access roads and a stabilized base course for the paved road servicing this 484 acre, $794 million dollar terminal construction project.

University of California at Irvine (UCI)
Irvine, California

The EMC SQUARED System was chosen for treatment of recycled pavement aggregate materials used in construction of this unpaved parking lot designed for temporary service during the building of a multi-story parking garage. The stabilized aggregate was protected by a dust control armor coat which was spray applied to the surface. The university then added parking lot striping. After over five years of service the stabilized aggregate layer exhibited little gravel loss and remained in excellent condition.

Total Environmental Restoration Contract (TERC)
Fort Ord, Monterey, California

Haul roads were constructed with an aggregate base rock incorporating some crushed concrete material. This aggregate mixture was treated upon placement with EMC SQUARED System application to strengthen the structural section and stabilize the running surface for haul truck operations during a two year landfill remediation project.

Stabilizing Recycled Aggregate Materials

Aggregate materials are mined from riverbed deposits and hard rock quarries. They are a non-renewable resource that is vanishing from near proximity to most urban areas. One-way haul distances to new sources of virgin aggregate materials are now often in the range of sixty to one hundred miles from the project site. Fortunately, recycling technology has improved to the point where a large portion of the old asphalt and concrete pavement is being milled and crushed for reuse during highway reconstruction projects. While these recycled aggregates are often substandard to virgin aggregate materials, they typically have the potential for outstanding performance when upgraded with EMC SQUARED® System treatments, providing strong but flexible layers similar in load carrying capacity to hot mix asphalt.

Recycled Aggregate
Treated With EMC SQUARED Stabilizer (1000)
(Test results at right)

For additional perspective, a recycled aggregate containing both asphalt millings and crushed concrete materials, was tested by Kleinfelder, Inc., following application of an EMC SQUARED System treatment. Using the Marshall Test apparatus (a standard test for evaluating hot mix asphalt pavement mixtures), they measured the Stability of the stabilized recycled aggregate material at 13,230 pounds, which is over twice the Stability of typical hot mix asphalt, with a Flow value of 11, indicating a flexibility or elasticity in the stabilized layer similar to that of hot mix asphalt pavement materials. This impressive laboratory performance, where both high load carrying capability and flexibility are once again demonstrated, correlates well with the field performance of recycled aggregate materials stabilized with EMC SQUARED System treatments.

ASPHALT INSTITUTE MARSHALL DESIGN CRITERIA

MARSHALL METHOD MIX CRITERIA	Light Traffic Surface & Base		Medium Traffic Surface & Base		Heavy Traffic Surface & Base	
	minimum	maximum	minimum	maximum	minimum	maximum
Stability, lb's	750		1200		1800	
Flow, 0.25 mm (0.01 in)	8	18	8	16	8	14

Test Report EMC SQUARED Stabilized Recycled Aggregate

KLEINFELDER

A Consulting engineering firm providing Environmental, Geotechnical, Materials Testing and Construction Management services since 1961.

PROJECT NO: *16653* **PROJECT NAME:** *Soil Stabilization Co.*

To: *Bob Randolph* **From:** *Kyle Kubik*

Soil Stabilization Co.

Kleinfelder, Inc.
1410 F Street
Fresno, CA 93706
ph: (559) 486-0750
fax: (559) 442-5081

Fax No: *(209)383-7849*

Date: *12/17/04* **Original will follow** ☐

Total pages: *1* **Original will not follow** ☐
(including cover sheet)

Project Name:	Soil Stabilization Co.	**Sample Date/Time:**	Unknown
Project Number:	16653	**Test Date:**	12/17/04
Source:	UPS	**Report Date**	12/17/04

Specimen Number	725			
Thickness	2.655			
Correction Factor	0.932			
Measured Stability	7390			
Flow	11			
Corrected stability	13230			

140 deg. Air bath

Technician: K. Kubik Lab Coordinator: B. Rice

#725: EMC SQUARED Stabilizer - CVT Class II Recycled Aggregate

Stabilization Products LLC

www.stabilizationproducts.net

Info@stabilizationproducts.net

(800) 523-9992 or (209) 383-3296

Canadian Sales: Milieu Road Technologies, Ltd. (780) 875-9159