STRUCTURAL REHABILITATION OF THE AIRPORT OF *COCHE ISLAND*, IN VENEZUELA, USING ASPHALT EMULSION MIX.

ECONOMICAL AND ECOLOGICAL SOLUTION.

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Sand-asphalt pavement 1978

Coche Island

A/P Coche Island

Runway 09-27. Dimentions: 1.200 x 30 m

Taxiway
30 x 20 m

Parking Apron
100 x 50 m

Google 2011

Background:

Initially, the pavement rehabilitation with hot asphalt mix was considered. But this solution was very complicated and expensive to implement, because in Coche island there are not processed material and plant to produce this mixture.

Then, the possibility of using cold mix with ***bitumen emulsion*** *was considered, this is the result …*

Project

August 2013

A/P Coche Island

Pavement condition before rehabilitacion

A/P Coche Island.

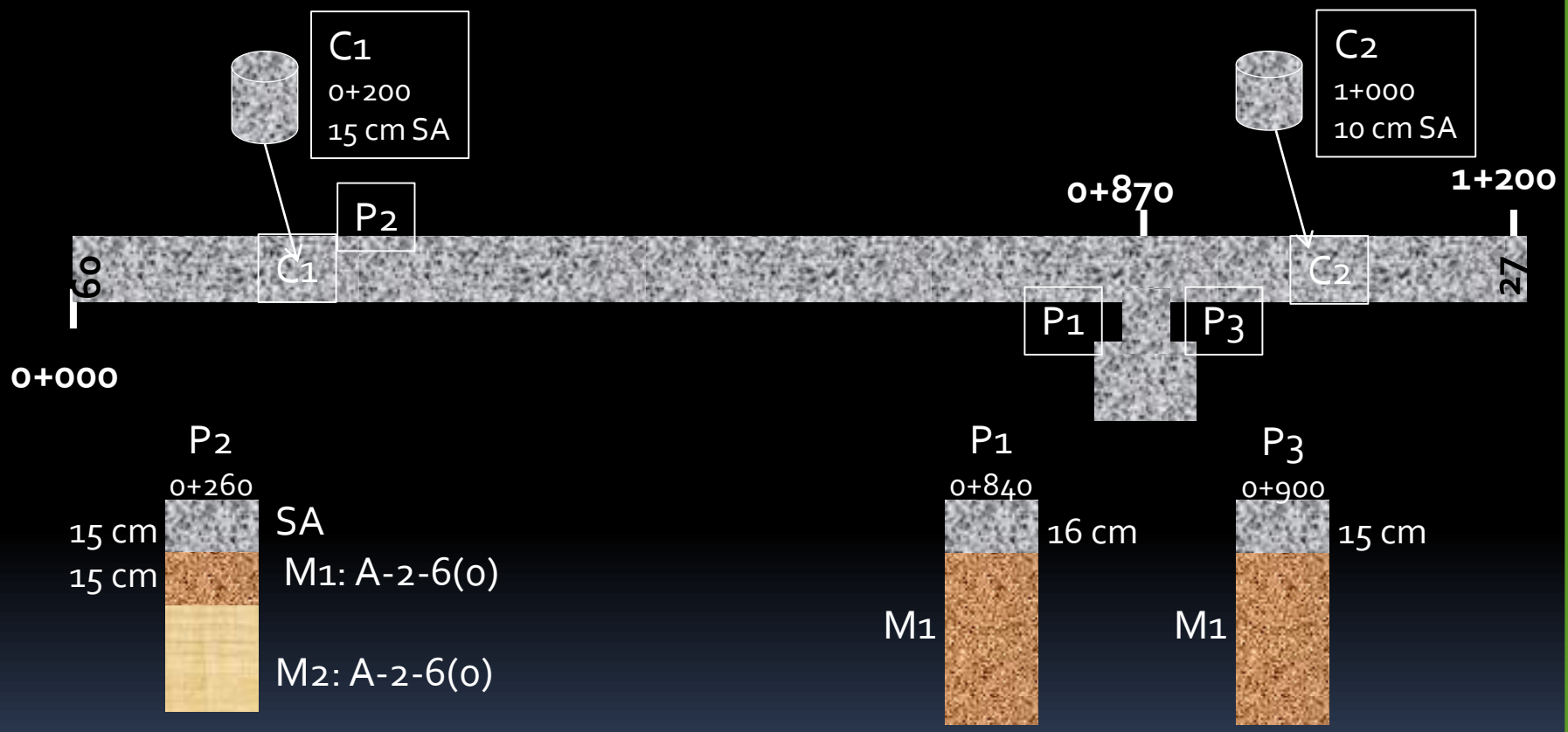
Pavement condition before rehabilitacion

A/P Coche Island.

Pavement condition before rehabilitación. Original sand/asphalt built in 1978. 10 to 15 cm thick.

A/P Coche Island.

Sand-asphalt and soils.



Rehabilitation actions

- Crack cleaning and application of weed killer
  Crack Sealing with EA
  Cracks Filling with EA-sand mortar
  Structural located patching
- Apply a tack coat with EA

- Place and compact AE Mix layers
  - Total thickness: 6 and 8 cm in two layers
- Apply a slurry seal on all the surface

Cracks treatment

Cracks cleaning

Application of weed killer

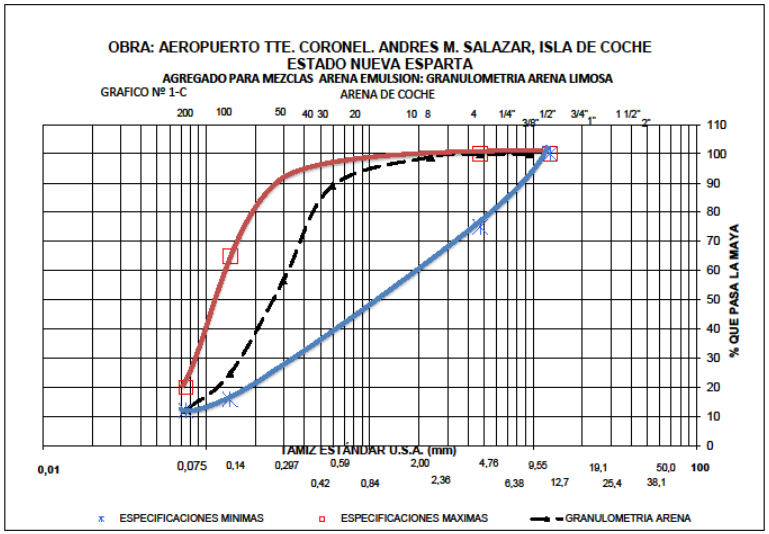
Cracks Filled with EA-sand mortar

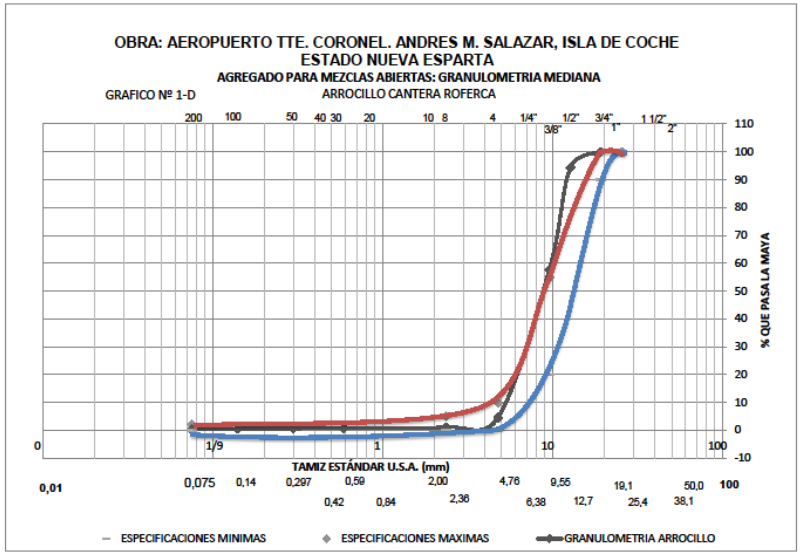
Asphalt Emulsion mix design

Aggregates:

Local sand from the island

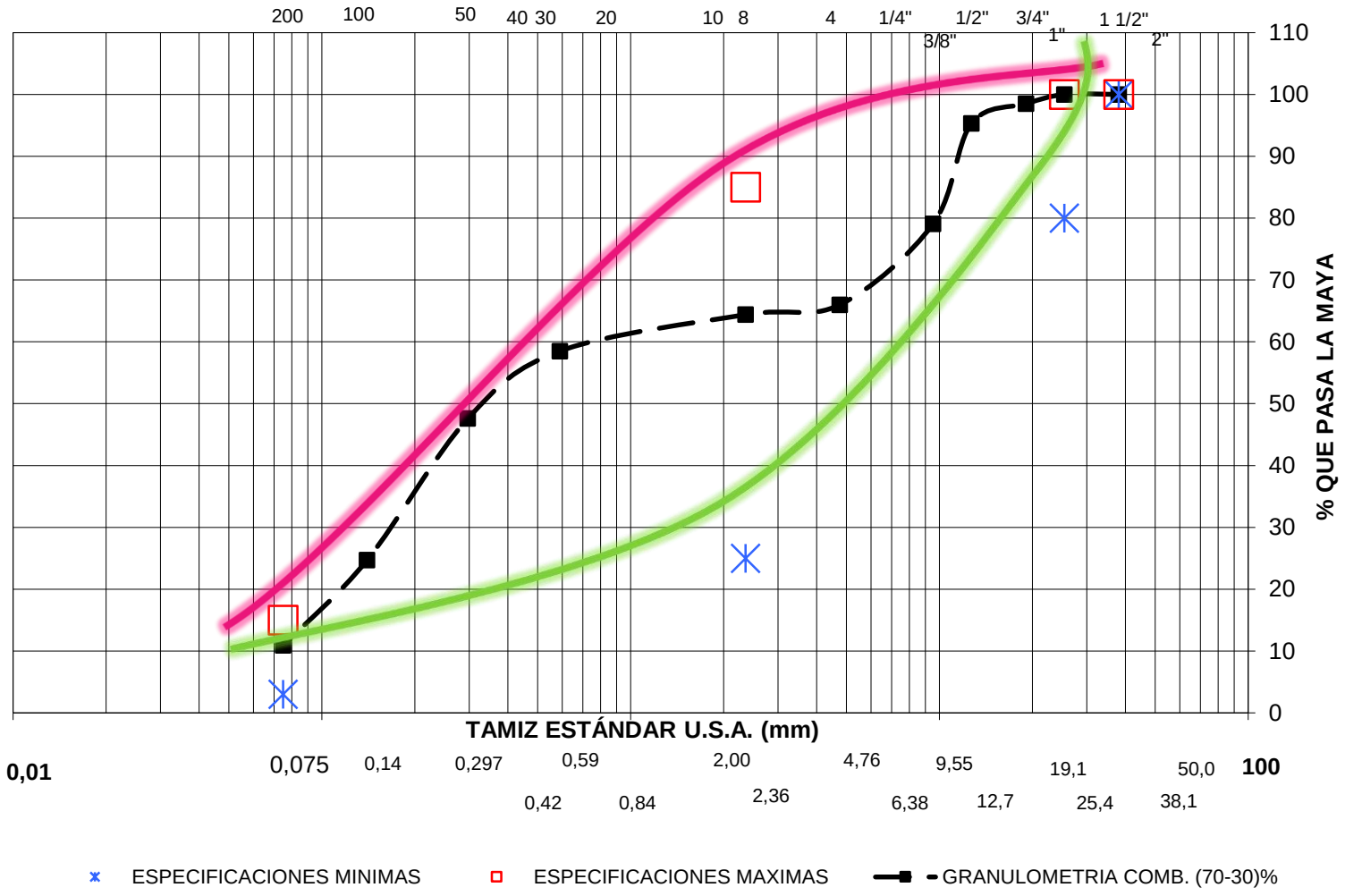
Crushed *arrocillo* from Margarita island





Final mix aggregate gradation

70 % sand – 30 % crushed *arrocillo*



MIX DESIGN WITH ASPHALT EMULSION (AE)		
TEST	**RESULT**	**SPECIFICACION**
Coverage	90 %	70 % min.
Mixing moisture	**8,0 %**	
Compactacion moisture	**5,0 %**	
Marshall stability at 24 hrs.	536 lbs	
Dry Bulk density	2013 kg/m3	
Marshall Dry Stability	1560 lbs	750 lbs min.
Marshall Submerged stability	1399 lbs	
Stability lost	10,3 %	30 % max.
Optimum asphalt cement	**6,5 %**	

Mix properties (Modified Marshall method)

Mix production

Construcciones y Sistemas Internacionales COSINT, C.A.

Mixing plant installed in place

Mix proportions:

70 % local sand

30 % transported crushed aggregate

Mixing procedure

Mix production

Storage of mix, 48 to 72 hrs to allow moisture contain reduction

Application of tack coat with AE

Placing first mix layer.

Placing and compaction of mix.

Compaction control of "*fresh mix*"

Second mix layer

Surface mix detail

Slurry seal

First fly April 2014

Completed job. 2014

Google 2014

Come to practice ***wind surf*** in Coche Island…

Thanks for the opportunity…

Augusto Jugo