

## HiMA TRIAL REPORT AUSTRALIAN TOUR

PRESENTED BY  
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## DESIGN BACKGROUND

- Design according to the interim design guideline put together by the CSIR under the umbrella of SABITA
- The base mix was selected due to the very high trafficked South Coast and Bayhead Roads
- These roads need regular rehabilitations as no mix could withstand the traffic conditions thus far. Only lasted a couple of months.
- The latest mix on Edwin Swales and South Coast Intersection is performing the best so far now about 2 years in service.
- It is believed that the HiMA with its very high stiffness values might be the answer to the problem, as concrete is not an option due to the unavailability of the road for long-term closures.

## DESIGN PROCESS

- BAILEY METHOD – AGGREGATE PACKING OPTIMIZATION
- COMPACT SERIES OF POINTS USING VARYING BINDER CONTENTS
- GYRATORY VOIDS 45 GARATIONS >6%
- RICHNESS MODULES
- CONFIRM OPTIMUM BINDER CONTENT
- DO SHEAR AND FATIGUE TEST TO CONFIRM PERFORMANCE OF MIX AND TO CHOSE FINAL BINDER CONTENT

## PLANT CALIBRATION

- CALIBRATE THE MIX THROUGH THE PLANT USING A LOW COST BINDER TO ENSURE THE GRADING IS ON DESIGN TARGET
- BE AWARE OF GRADING FLACTUATIONS USE A TIGHTER WORKING SPEC ENVELOPE.

## MIXING PLANT DETAILS

DOUBLE DRUM CONTINUOUS TYPE PLANT



## MANUFACTURING

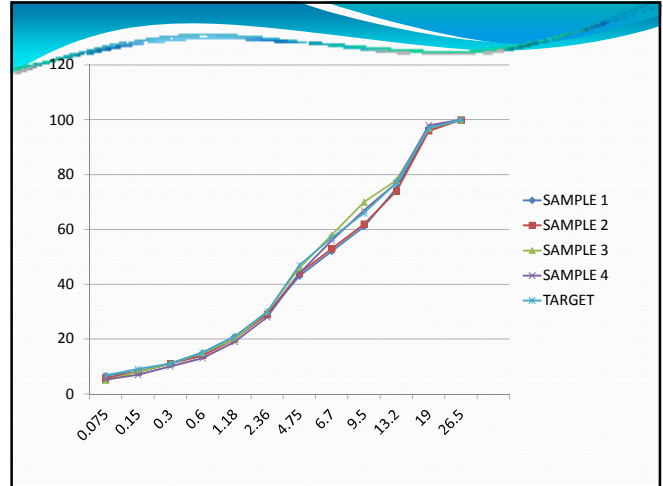
- Bitumen tank temperature 172
- Bitumen pot temperature 166
- Mixing temperature 172

AGGREGATE MOISTURES & TEMPERATURES

- 19.0 – 1.7% .... 17 °C
- 13.2 – 0.5% ... 13 °C
- 9.5 – 2.0% .... 16 °C
- CRUSHER DUST 3.9% ... 16 °C
- -16 RA 2.1% .... 18 °C
- -8 RA 5.7% .... 18 °C

### WHY USE RA

- THE HARD AND AGED BINDER CAN ASSIST IN DROPPING THE VIRGIN BINDER PEN.
- THIS CAN ENHANCE RUT PERFORMANCE
- FRIENDS IN THE UK HAS INDICATED THAT RA MIXES IS PERFORMING BETTER THAN VIRGIN MIXES.
- THE DESIGN USED HERE WITH 20% RA PERFORM BETTER THAN ALL THE OTHER DESIGNS NOT USING RA IN SA



### STANDARD COMPACTION TRAIN

- Base / Sub base courses : - **HiMA 20**
  - Pneumatic Tyred Roller
  - Heavy Vibratory roller
- Binder Course: – **HiMA 14**
  - Pure bitumen : PTR + VR
  - Modified Bitumen : only VR
- Thin Wearing Course : BBTM, BBdr, BBUM : - **HiMA 10**  
only smooth steel roller, no vibration, no PTR

### DENSITIES TOP LAYER FAST LANE HiMA 20

Core number	LAYER THICKNESS	MTRD	DENSITY	TMH1 air voids
C1	88	2.490	95.1	4.9
C2	98	2.490	94.1	5.9
C3	85	2.490	93.0	7.0
C4	80	2.490	95.2	4.8
C5	86	2.490	93.3	6.7
C6	78	2.490	93.9	6.1
C7	68	2.490	95.1	4.9

### PAVING TRIAL OBSERVATIONS

- Mixing – no coating problems was observed.
- Temperatures recorded on site - Consistent
- Temperatures recorded behind the paver – plus minus 16o
- Roller passes 3+3

QUESTIONS??

THANK YOU