



warm mix  
asphalt rsa

# HiMA - NATIONAL TRIALS : DURBAN

SOUTH COAST ROAD - AUGUST / SEPTEMBER 2011

## CONSTRUCTION & INITIAL PERFORMANCE



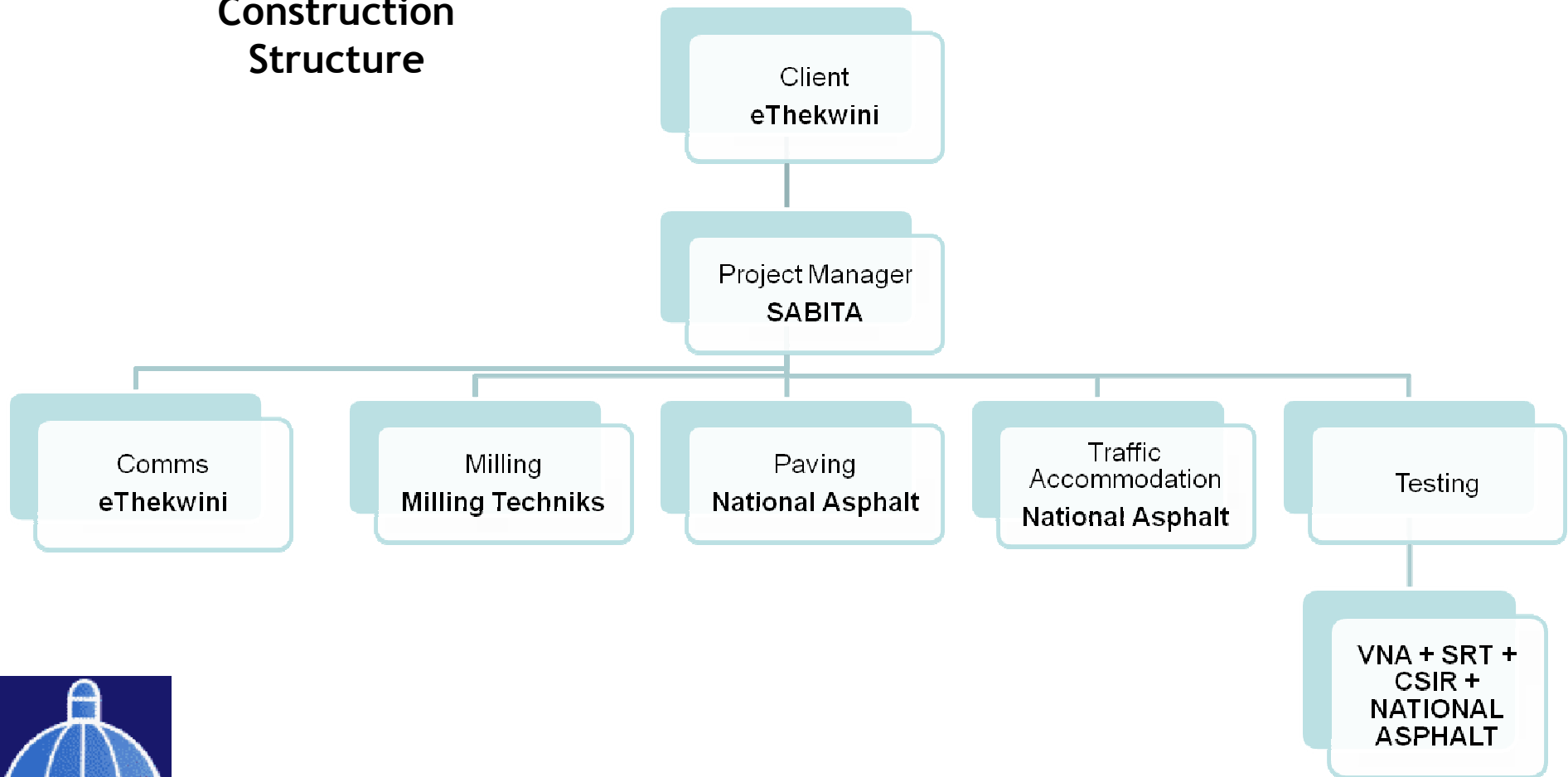
Krishna Naidoo

22<sup>ND</sup> ROAD PAVEMENT FORUM | NOV 2011 | CSIR | PRETORIA





## Construction Structure



- Plant calibration
  - AP1 + HiMA grading
- Paving trial
  - 100 ton with 10/20 pen + HiMA grading
- Full scale construction
  - 29 Aug 2011 to 8 September 2011





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## PREPARATION AND PAVING





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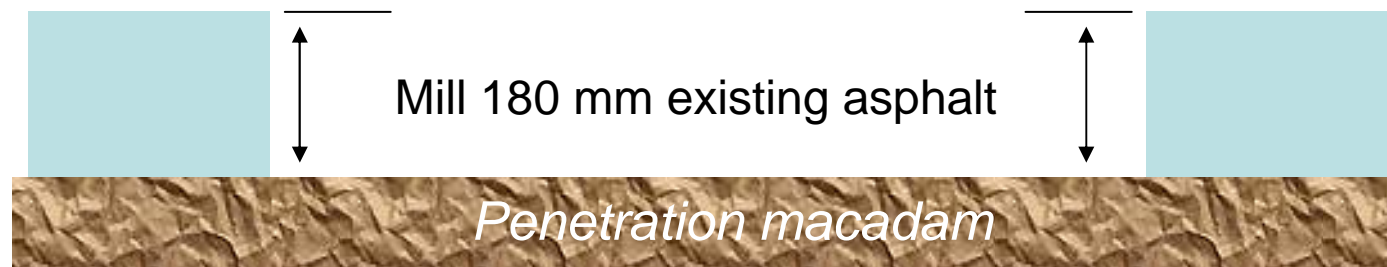


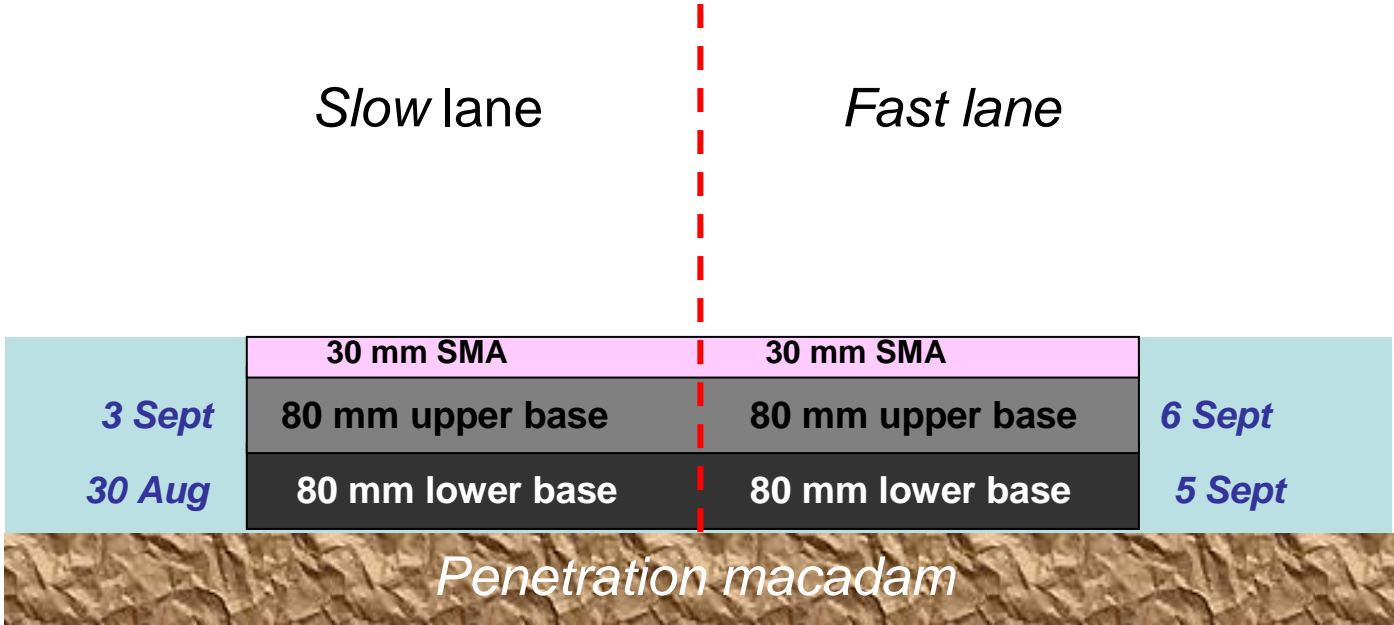
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**Some "patching" was required**





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*Lower Base, fast lane 30 August*





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## Compaction:

10 ton steel wheeled vibratory roller

22 ton PTR

Some tendency for over-compaction – flushing

Supervision initially necessary

Sudden stiffening can be expected



*Upper Base, fast lane 3 September*





## SUMMARY OF PAVING RESULTS

DATE PAVED	LANE	LAYER	Bitumen Content (%)	AVE. DISPATCH TEMP (°C)	AVE. TEMP AT PAVER (°C)	AVE. FIELD VOID CONTENT (%) (Rices)	AVE. ROLLER PASSES	
							STEEL WHEEL	PTR
30 Aug	Fast	Lower base	5.5 5.4 4.9 5.3	173	159	2.2	3	3
3 Sept	Fast	Upper base	5.0 4.7 4.6 4.4	171	160	5.8	3	3
5 Sept	Slow	Lower base	4.9 5.1 5.0 4.6	169	165	3.2	3	3
6 Sept	Slow	Upper base	5.0 4.7 5.2	171	160	4.2	3	3



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PERFORMANCE







# Long term monitoring

- CSIR
  - Visual assessment every 6 months for 2 years
- VNA
  - FWD and profile measurement every 6 months for 2 years
- eThekwini
  - Traffic count / weigh-in-motion





# Challenges.....

Compaction learning curve with “unknown” product

Uncertainty of compaction/field void requirement

Patching of areas where underlying penetration macadam was disturbed

Bridge deck steel

Traffic accommodation, especially at Bayhead Road intersection



## Overall impressions

HiMA is a “first world” product that is more sensitive to changes in aggregate packing and binder properties than our routinely used asphalt mixes.

Some of our tolerances, such as those for aggregate grading, may have to be tightened in order to achieve the full benefits of HiMA.

Consideration should be given to use a smaller (14mm) max stone size.

Also the level of field voids must be decided upon beforehand so that compaction can be properly.



# Moving HiMA forward

- eThekweni will host another trial.
- Options to be investigated:
  - HiMA 14
  - Warm HiMA
  - HiRA-HiMA
- 10 / 20 pen bitumen available from Shell in 2<sup>nd</sup> quarter of 2012





thread lightly

