PT PROTOCOL FOR ASPHALT MIXES & PENETRATION GRADE BITUMEN

21st RPF MEETING

Villa Via Hotel, Gordon's Bay, Western Cape

10 MAY 2011

Overview

- Background
- Broad overview
- Bitumen PT scheme
- Asphalt PT scheme
- Soils & Gravels PT scheme
- A final word

Background

- Such a process has been on the cards for many years
  - Now finally looks to be taking off.
- Similar projects will need to be undertaken for all road building materials
  - Soils & Gravels
  - Aggregates
  - Pen Grade, Cut-back & Bitumen Emulsion products
  - Asphalt
  - Concrete
- SABITA funding initiative to have bituminous protocols developed.

Background

- SABITA funding development of Pen Grade & Asphalt PT scheme protocol
  - Basic asphalt test methods
  - Penetration Grade Bitumen test methods
- Reasons for the project
  - Look at ways to identify where variations in test results originate from
  - Look towards minimising these differences between laboratories test results.
- The ultimate goal
  - Improve quality of testing results obtained from laboratories when testing Asphalt mixes & Penetration Grade Bitumen
  - Improving laboratories image as a professional service

Background

- Task group
  - H Marais (Much) Chair
  - J Venter (SRT / Soilco)
  - S Strydom (Sanral)
  - B Verhaege (CSIR)
  - W Nortje (National Asphalt)
  - K Louw (Colas)
  - J van Heerden (Sastech)
- Additional review committee members:
  - M Cilliers (MTTC);
  - C de Bruin (MatroLab);
  - U Campher (RoadLab);
  - O Ueckermann (Gautrans);
  - P Fourie (soilLab);
  - T Meyers (CiviLab)
  - R de Jongh (Geostrada).

Broad approach
The 5 Protocol documents

- Invitation letter & application form to partake
  - Separate form for each material type
- A form to quote on preparation of samples for distribution
  - This will not be applicable in the 1st round testing
- A form detailing method of how samples to be made up
  - Vital to ensure each PT scheme run is done in same manner / method
  - Variability between runs can be determined from these

Broad approach
Protocol documents

- Protocol on testing itself
  - Outlines tests to be undertaken
  - Details of sample re-heating, heating periods & date testing to be undertaken
  - Done to assist in reducing variables that can be controlled.
- Questionnaire to determine information on what occurred during actual testing in each laboratory
  - Assist in identifying potential differences in test results
  - Isolate problem areas

Questionnaire details

- Will require some detailed attention
- Not applicable to all test methods
- Questions include (e.g.)
  - Labs ambient temperatures
  - Conditioning periods
  - Actual sample temp @ specific points during test
  - Apparatus used to measure temperature
  - Individual briquette heights
  - Automatic or manual apparatus
  - Last external calibration date of apparatus

Pen Grade Bitumen PT scheme

- Basic SANS 307 spec excluding spot test
  - Pen test
  - Ring & Ball softening point
  - BV Viscosity
  - RTFOT

Asphalt PT scheme

- SANS 3001 revised test methods
  - Marshall briquettes
    - AS1;
  - Marshall stability, flow & quotient
    - AS2;
  - Bulk density & void content
    - AS10 – previously BRD,
  - Maximum voidless density & binder absorbed
    - AS11 – previously Rice density
  - Soluble binder content & grading analysis
    - AS20 – binder extraction.
  - ITS requested to be included but currently not in SANS 3001 format.

Soils & Gravels PT scheme

- Pilot scheme to test
  - Indicators
    - Wet grading
    - Atterberg limits
- Mod & CBR
  - to follow once scheme has been piloted
- May be the easiest & quickest to get going.

A final word …

- It is envisaged that this project will assist in ensuring that laboratories, Engineers & Contractors get a better understanding of potential factors influencing variability in their results
- Highlight effects / causes of inter-laboratory testing variables.
- This will assist in leading to a better quality of testing & a more professional laboratory testing process within South African laboratories