

COTO: ROAD MATERIALS COMMITTEE

RPF - July 2019 - Port Elizabeth

Krishna Naidoo (Chair)

South Africa

COTO

Committee of Transport
Officials

RMC Working Groups & Sub-committee

- ▶ RMC WGs - Routine Road Maintenance, Water Demand
- ▶ COTO: RMC - Materials testing Sub-committee - report back later in RPF.
- ▶ RMC supports industry bodies like NLA, SABS, ECSA, SABITA, ASPASA, SAT etc directly and through our sub-committee.
- ▶ From time to time, we also invite industry bodies for specific agenda items.
- ▶ RMC was recently advised that civil engineering laboratories are forming their own industry body - RMC looking forward engaging further.

RMC + Industry

- ▶ Formed National WG: Chemistry for Roads
 - ▶ first project HPEWG - report later in RPF
- ▶ Academia - Stellenbosch University Research Workshop participation - 2019
 - ▶ CT scans,
 - ▶ Pollution from tyres
 - ▶ Automated vehicles
 - ▶ Fire prevention in informal settlements
- ▶ Tech industry integration - IoT/5G
 - ▶ awareness was created at previous RPF's
 - ▶ how do we engage further
- ▶ Geotech integration
 - ▶ presentation later in RPF.

NEW COTO DRAFT STANDARD SPECIFICATION WORKSHOP



**Standard Specifications for Road
and Bridge Works for State Road
Authorities**

**Committee Draft (CD)
ALL CHAPTERS**

Confidential

**This document is confidential and may only
be distributed for purposes of obtaining
comment and not intended for use.**

**JC VAN DER WALT⁴
2 July 2019**

BACKGROUND: COTO SUITE OF DOCUMENTS

| | |
|----------|---|
| VOLUME 1 | GENERAL CONDITIONS OF CONTRACT (FIDIC; GCC, ETC) |
| VOLUME 2 | STANDARD SPECIFICATIONS FOR: |
| | 2.1 ROADS AND BRIDGE WORKS 2.2 ROUTINE ROAD MAINTENANCE ?? |
| VOLUME 3 | CONTRACT DOCUMENT |
| VOLUME 4 | ROADWORK DRAWINGS |
| VOLUME 5 | STRUCTURES DRAWINGS |
| VOLUME 6 | MATERIAL UTILISATION |
| VOLUME 7 | ENVIRONMENTAL MANAGEMENT PLAN |

BACKGROUND:

- The revision work is carried out under the auspices of the Road Materials Committee (RMC).
- Working Groups for each of the Chapters were formalised in early 2014 which consists of a co-ordinator with the following members:
 - RMC
 - Provinces
 - SAFCEC
 - ASPASA
 - Municipalities & Metros
 - Consultants (members specialising in specific fields)
 - SANRAL
 - DOT
- The document to cater for the use of all authorities – SANRAL, Provincial, Municipal and Metros.
- The document to be available electronically and free of charge.
- COTO Standard Specifications is not a **“design document”**.

BACKGROUND:

- **Revision procedure:**
 - **Compile web-based document (replace 2 columns with 1)**
 - **Use SANRAL pro-forma as basis**
 - **Review other documentation including international specifications**
 - **Change the layout and restructuring of the old document to be in line with international standards**
 - **Identify outdated requirements/equipment/specification**
 - **What works and what doesn't – practical for contractor and measurable by engineer**
 - **Identify changes that affect other series (TRH; TMH, etc.)**
 - **Move away from terminology such as “determined by the Engineer”.**

WHAT HAS CHANGED FROM THE OLD TO THE NEW

- **BASICALLY THE WHOLE DOCUMENT HAS CHANGED!!! (12 new chapters)**
- **Management and Utilisation (M&U) Plan: for borrow material, blasting, cuttings and fills $\geq 5000\text{m}^3$**
- **Material Grading Requirements: change in the sieve sizes**
- **Material Classification: Soft, intermediate and hard. No more intermediate, only for labour enhanced works**
- **Incorporate some SABS/SANS 1200 Specification principles into chapter sections**
- **The specification such as AASHTO, CEN, BS and other International standards requires agreement with our SABS for policing the standards locally**

OLD CHAPTERS OF COLTO STANDARD SPECIFICATIONS (VOLUME 2 – 1998)

- **SERIES 1000: GENERAL**
- **SERIES 2000: DRAINAGE**
- **SERIES 3000: EARTHWORKS AND PAVEMENT LAYERS OF GRAVEL OR CRUSHED STONE**
- **SERIES 4000: ASPHALT PAVEMENTS AND SEALS**
- **SERIES 5000: ANCILLIARY ROADWORKS**
- **SERIES 6000: STRUCTURES**
- **SERIES 7000: SUNDRY STRUCTURES**
- **SERIES 8000: SUNDRIES**

NEW FORMAT: CHAPTERS

EACH CHAPTER SECTION CONSISTS OF:

PART A: SPECIFICATIONS

Table of Contents:

- 1. Scope**
- 2. Definitions**
- 3. General**
- 4. Design by Contractor/Performance Based Systems**
- 5. Materials**
- 6. Construction Equipment**
- 7. Execution of the Works**
- 8. Workmanship**

PART B: LABOUR ENHANCED

1. to 8.

PART C: MEASUREMENT AND PAYMENT

PART D: GUARANTEES AND COMPLIANCE CERTIFICATES

NEW FORMAT:

PART B: LABOUR ENHANCED

Definition: Labour Enhanced means to improve the scope for labour

The methods and specifications related to labour enhanced construction are contained in **Part B** of each of the relevant sections of these Standard Specifications. The requirement for the use of labour enhanced construction methods to satisfy any particular **project goals** will be set out in the contract documentation.

The specifications given in **Part A** of these Standard Specifications will apply to all work carried by using labour enhanced construction methods unless some of the specifications in Part A are replaced with revised specifications in Part B that are specifically applicable to the specified labour enhanced construction or additional specification for labour enhanced construction are provided in **Part B**.

NEW CHAPTERS OF REVISED COTO STANDARD SPECIFICATIONS (VOLUME 2)

- **CHAPTER 1: GENERAL**
- **CHAPTER 2: SERVICES**
- **CHAPTER 3: DRAINAGE**
- **CHAPTER 4: EARTH AND PAVEMENT LAYERS: MATERIALS**
- **CHAPTER 5: EARTH AND PAVEMENT LAYERS: CONSTRUCTION**
- **CHAPTER 6: CONCRETE LAYERS**
- **CHAPTER 7: MAINTENANCE & REPAIR OF CONCRETE LAYERS**
- **CHAPTER 8: PRE-TREATMENT AND REPAIR OF EXISTING SURFACES**
- **CHAPTER 9: ASPHALT LAYERS**
- **CHAPTER 10: SEALS & MICRO-SURFACING**
- **CHAPTER 11: ANCILLARY ROAD WORKS**
- **CHAPTER 12: GEOTECHNICAL APPLICATIONS**
- **CHAPTER 13: STRUCTURES**
- **CHAPTER 14: REPAIR & REHABILITATION OF STRUCTURES**
- **CHAPTERS 15 TO 19: RESERVED FOR FUTURE USE**
- **CHAPTER 20: QUALITY ASSURANCE**

Document Versions

Working Draft (WD). When a COTO subcommittee identifies the need for the revision of existing Standard Specifications for Road and Bridge Works, a workgroup of experts is appointed by the COTO subcommittee to develop the document. This document is referred to as a Working Draft (WD). Successive working drafts may be generated, with the last being referred to as Working Draft Final (WDF). **Working Drafts (WD) have no legal standing.**

Committee Draft (CD). The Working Draft Final (WDF) document will be converted to a Committee Draft (CD) and is submitted to the COTO subcommittee (RMC) and industry for consensus and comments. Successive committee drafts may be generated during the process. When approved by the subcommittee, the document is submitted to the Roads Coordinating Body (RCB) members for further consensus building and comments. Additional committee drafts may be generated, with the last being referred to as Committee Draft Final (CDF). **Committee Drafts (CD) have no legal standing.**

Draft Standard (DS). The Committee Draft Final (CDF) document will be converted to a Draft Standard (DS) and submitted by the Roads Coordinating Body (RCB) to COTO for approval as a draft standard. This Draft Standard is implemented in Industry for a period of two (2) years, during which written comments may be submitted to the COTO subcommittee. **Draft Standards (DS) have full legal standing.**

Final Standard (FS). After the two-year period, comments received are reviewed and where appropriate, incorporated by the COTO subcommittee. The document is converted to a Final Standard (FS) and submitted by the Roads Coordinating Body (RCB) to COTO for approval as a final standard. This Final Standard is implemented in industry for a period of five (5) years, after which it may again be reviewed. **Final Standards (FS) have full legal standing.**

WORKSHOP PROGRAMME FOR THE DIFFERENT CHAPTERS

CHAPTER 8: PRE-TREATMENT AND REPAIR OF EXISTING SURFACES
CHAPTER 9: ASPHALT LAYERS
CHAPTER 10: SEALS
CHAPTER 20: QUALITY ASSURANCE

10 & 11 MAY 2018 (CAPE TOWN)

CHAPTER 4: EARTH AND LAYER WORKS: MATERIALS
CHAPTER 5: EARTH AND LAYER WORKS: CONSTRUCTION
CHAPTER 20: QUALITY ASSURANCE

27 JULY 2018 (PRETORIA)

CHAPTER 2: SERVICES
CHAPTER 3: DRAINAGE
CHAPTER 11: ANCILLARY ROAD WORKS

19 & 20 SEPTEMBER 2018
(PORT ELIZABETH)

CHAPTER 12: GEOTECHNICAL APPLICATIONS
CHAPTER 13: STRUCTURES
CHAPTER 14: REPAIR & REHABILITATION OF STRUCTURES
CHAPTER 20: QUALITY ASSURANCE

1 & 2 OCTOBER 2018
(CAPE TOWN)

DRAFT COTO DOCUMENT WITH ALL CHAPTERS (CD)
WORKSHOP: CAPE TOWN
WORKSHOP: JOHANNESBURG
WORKSHOP: DURBAN

**** A NOTE OF THANKS TO SARF
FOR ARRANGING THE
WORKSHOPS****

25 – 29 MARCH 2019
8 – 12 APRIL 2019
13 - 17 MAY 2019

Regional attendance

| Regional centre | No of attendees |
|-----------------|-----------------|
| Cape Town | 97 |
| Durban | 133 |
| Johannesburg | 133 |









SOME INTERESTING COMMENTS RECEIVED

ALTERNATIVE WORDS FOR MANHOLES AND WORKMANSHIP

The proposal received is to change the word “work**man**ship” with the word “workship” to remove the man part. (form a new technical word?); and

Change the word “**man**hole” with “inspection chamber” to remove the part of the word man from the document.

Opinions on the internet:

“1978 - In Woonsocket, Rhode Island, the City Council has ruled that from now on those metal-covered holes in our streets we've long called manholes will henceforth be known as person holes.”

"They stopped calling them manholes, because it was sexist." – this decision was reversed a few months later and they went back to the term manholes and still use it today.

“Sacramento city officials, having found the word "manhole" sexist, have now come up with a new name for those utility holes in streets. Without fanfare, the City Council adopted the term "maintenance hole" this week to replace "manhole" on official maps and documents. Public works officials had proposed finding a non-sexist term in jest, but Mayor Anne Rudin liked the idea and the debate quickly spread.”

WHAT IS THE OPINION OF RPF??



COTO REVISION

CHAPTERS: SANRAL website, www.nra.co.za
Service Provider zone; Manuals & policies; COTO
Standard Specifications

COTO REVISION COMMENTS: Excel spreadsheet
for comments loaded with Chapters as above

E-mail for comments: cotorevision@nra.co.za

Deadline for comments was **Friday, 28 June 2019**

**No additional comments will be considered after this date except for
the MSEW section in Chapter 12.**

TRH/TMH UPDATES STRATEGIES

- ▶ RMC + INDUSTRY PARTNERSHIPS - PILOT: TMH 5 REV
- ▶ COMPLETE INDUSTRY UPDATE - Then proposal to RMC as TRH/TMH - SABITA DOCUMENTS
- ▶ SANRAL RESEARCH PANEL SUPPORT
- ▶ RMC + CAPSA19 is engaging on a further model for documents to be updated.

REVISED COTO std spec - PROJECT SPECIFICATION

- ▶ COTO Companion document enquiries during workshops
- ▶ SANRAL PRO-FORMA - compilation efforts commenced.
- ▶ 1 Municipality has enquired about being part of the effort.

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REVIEW OF
TECHNICAL METHODS FOR HIGHWAYS (TMH) 5:
SAMPLING METHODS FOR ROADS CONSTRUCTION
MATERIAL

RPF Feedback _July 2019_Port Elizabeth
Gretchen-Webber Cherry

July 2019

Participants of the TMH 5 Revision

- Commercial Laboratories - **CETLAB, LABCO, INDLELA LAB, SISWEKULA**
- Consultants – **ERO ENGINEERS, LEARNINGMATTERS, VICTORRAS, AECOM**
- Asphalt Suppliers - **MORE ASPHALT, MUCH ASPHALT, NATIONAL ASPHALT**
- Aggregate Suppliers – **AFRISAM, LAFARGE**
- Provinces Representatives – **Western Cape Provincial Govt, KZN DOT**
- **Local Govt Reps – eThekweni Municipality**
- Contractors – **HILLARY CONSTRUCTION**
- **SANRAL**
- **SABITA**
- **SAT**
- **Concrete Institute**
- **ASPASA**
- **Academia – Stellenbosch University**

Full Listing of Participants

- Gretchen Weber - Cherry <WeberCherryG@nra.co.za>; Joseph Van Houten (WR) <VHoutenJ@nra.co.za>; Rajesh Dookie (ER) <DookieR@nra.co.za>; Krishna Naidoo (ER) <Naidookr@nra.co.za>; Sean Strydom (SR) <StrydomS@nra.co.za>; Andrew Ssekayita (ER) <SsekayitaA@nra.co.za>; Andrew Mac Kellar (HO) <MackellarA@nra.co.za>; Robert Damhuis (SR) <damhuis@nra.co.za>; Saied Solomons <Saied@sabita.co.za>; 'Lorraine Wagner' <lewagner@sabita.co.za>; johan@actop.co.za; nico@aspasa.co.za; Johan Burger <johan.burger@afrimat.co.za>; ray.bonser@za.afrisam.com; 'lerouxjj@cetlab.co.za'; Dinny Waggiet | Indlela EC <dinny@indlelaec.co.za>; victord52@yahoo.com; jacobus@labco.co.za; bryanp@theconcreteinstitute.org.za; kit.ducasse@kzntransport.gov.za; carl@emergeco.co.za; Hillary | Greg Reynolds <gregr@hillary.co.za>; rhuwayda.lalla@lafargeholcim.com; barry@learningmattersetc.co.za; jonathan@moreash.co.za; Owen@moreash.co.za; darryll@moreash.co.za; fruiters@moreash.co.za; Colin Brooks <colin.brooks@muchasphalt.com>; Herman Marais <herman.marais@muchasphalt.com>; Eric.Lathleiff@durban.gov.za; wynand.n@nationalasphalt.co.za; garth.mi@nationalasphalt.co.za; John Onraet <john.onraet@telkomsa.net>; eddie.jansenvanvuuren@spraypave.co.za; mprinsloo@taupele.co.za; htheyse@telkomsa.net; christo@scvanas.co.za; Marco du Toit <mdutoit@ero-engineers.co.za>; Mfundo.Taliwe@sizwekhula.co.za; Herman.Wolff@westerncape.gov.za; Kim Jenkins <Kjenkins@sun.ac.za>; toscalab@iafrica.com; Herman Lubbe <herman@labucon.co.za>; Wynand Nortje <Wynand.N@shisalanga.com>; Letisha Van den Berg <letisha.vandenberg@afrimat.co.za>; Hennie <hennie@jantar.co.za>; Trish Dinkelman <Trish.D@shisalanga.com>; Robin Rhys <Robin.Rhys@za.afrisam.com>; Charl Marais <CharlM@pilotcrushtec.com>



The Revision includes

- The latest standards
- Best practice
- Innovation
- New technology
- New terminology
- Illustrations

Methods being updated

- **Natural Materials**

- Sampling of a natural rock mass
- Sampling from a conveyor belt
- Sampling by auger

- **Stockpiled Material**

- **Untreated Materials**

- ✓ Sampling of stockpiles
- ✓ Sampling from a conveyor belt
- ✓ Sampling of cement of lime
- ✓ Sampling of bituminous binders

- **Treated Materials**

- ✓ Sampling of premixed asphalt
- ✓ Sampling of slurry mixes
- ✓ Sampling of freshly mixed concrete

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Methods being updated cont.

- **Pavement Layers**

- Sampling of road pavement layers
- Sampling of asphalt and concrete from a completed layer or structure

- **General Methods**

- Division of a sample using the riffler
- Division of a sample by quartering



6.1.1. The sample should be taken from at least 6 random spots across the truck area ... top, ~~centre~~ left, ~~centre~~ right, front, middle and rear. Remove at least 200mm of the "crust" of the asphalt then take no more than one shovel-full at each point, transferring each shovel into the same sample bags or containers. Depending on the number of tests required on each specific sample one more shovel scoops should be taken at each sample point



6.1.2. A temperature is taken in the hole in the ~~centre~~ centre of the load, after the shovel has transferred the sample to the container

6.1.3. Place the samples in suitably marked sample containers (a heat-insulated container when briquettes are to be made) and dispatch if immediately to the laboratory.

THANK YOU FOR YOUR ATTENTION!



UNDER CONSTRUCTION
CONTENT WILL BE AVAILABLE SOON



THANK YOU

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