

The new COTO Specifications and upcoming SANRAL Projects

Bryan Perrie

bryan.perrie@cemcon-sa.org.za



The new COTO Specifications



Background

- Pre 1980 – own specifications
- 1980's – SABS 1200, TRHs and TMHs
- 1987 – CSRA “Committee of State Road Authorities”
- 1998 – COLTO “Committee of Land Transport Officials”
- 2020 – COTO “Committee of Transport Officials” **October 2020** version – full legal standing – COLTO withdrawn
- 2022/2023 – COTO Final Standard



Background

The new COTO Standard Specifications for Road and Bridge Works for South African Road Authorities was approved by COTO on 18 August 2020 as a Draft Standard (DS) and will be replacing the COLTO Standard Specifications for Road and Bridge Works for State Road Authorities (1998 Edition).

Existing contracts and tenders in the design phases based on the COLTO Standard Specifications (1998 Edition) will remain unaffected but will be phased out during the next 6 months and the COTO Standard Specifications (2020 Edition) will be mandatory for use in procurement documents advertised as from 1 March 2021.



Background

- Draft Chapters can be downloaded from either SANRAL or DOT websites
- Comments on the draft chapters should be submitted on Excel spreadsheets available on above websites
- Submit to cotorevision@nra.co.za



COLTO Content

Series (8)	Sections (55)
1000 General	7
2000 Drainage	4
3000 Earthworks and Pavement Layers of Gravel or Crushed Stone	9
4000 Asphalt Pavements and Seals	9
5000 Ancillary Roadworks	9
6000 Structures	8
7000 Sundry Structures	5
8000 Sundries	4

400 odd pages



COTO Content

Chapters (15)	Sections (90)
1. General	7
2. Services	4
3. Drainage	3
4. Earthworks and Pavement layers: Materials	5
5. Earthworks and Pavement layers: Construction	5
6. Concrete Layers	2
7. Maintenance and Repair of Concrete Layers	6
8. Pre-treatment and Repair Existing Layers	9
9. Asphalt Layers	1
10. Surface Treatments	1
11. Ancillary Works	9
12. Geotechnical Applications	12
13. Structures	14
14. Repair and Rehabilitation of Structures	11
20. Quality Assurance	1

1300 odd pages

COTO Structure

- Chapters covering Concrete
 - Chapter 6: Concrete Layers
 - Chapter 7: Maintenance and Repair of Concrete Layers
 - Chapter 13: Structures
 - Chapter 14: Repair and Rehabilitation of Structures
 - Chapter 20: Quality Assurance



COTO Structure

- Each Chapter has a number of Sections
- Each Section has 4 parts viz;
 - Part A: Specifications
 - Part B: Labour Enhancement
 - Part C: Measurement and Payment
 - Part D: Guarantees and Compliance Certificates

Part B – Specs to improve the scope for labour, not labour intensive construction. Part A specs apply unless changed in Part B



COTO Structure

- Part A Specifications and Part B Labour Enhancement
 - 6.1.1 Scope
 - 6.1.2 Definitions
 - 6.1.3 General
 - 6.1.4 Design by Contractor/Performance Based Systems
 - 6.1.5 Materials
 - 6.1.6 Construction Equipment
 - 6.1.7 Execution of the Works
 - 6.1.8 Workmanship

COTO Structure

- Part D Guarantees and Compliance Certificates
 - 6.1.1 Scope
 - 6.1.2 General
 - 6.1.3 Performance Guarantee Requirements
 - 6.1.4 Functional Performance Assessments
 - 6.1.5 Visually Assessed Properties
 - 6.1.6 Instrumentally Assessed Properties
 - 6.1.7 Evaluation for Acceptance
 - 6.1.8 Additional Procedures in Event of Failure
 - 6.1.9 Notification of Remedial Work
 - 6.1.10 Remedial Works



Chapter 6 Concrete Layers

- Chapter 6 has two Sections viz;
 - 6.1 Paver Laid Concrete Layers
 - 6.2 Segmental Block Paving Layers
 - Each with the 4 Parts
- An Issue with Paving

Chapter 7 Maintenance and Repair of Concrete Layers

- Existing COLTO has some detail on remedial work in Section 7125
 - Removing concrete
 - Removing high spots
 - Repairing joints
 - Repairing cracks
 - Rehabilitation of concrete pavements
 - Removal
 - Placing new concrete
 - Surface texture
 - Joints
 - Repairing joints and cracks
 - Retexturing

**All in one
and a half
pages**



Chapter 7 Maintenance and Repair of Concrete Layers

- Chapter 7 has six Sections viz;
 - 7.1 Replacement of Existing Joint Sealant
 - 7.2 Repairs to Existing Joints and Uncontrolled Cracks in Concrete Pavements
 - 7.3 Removal and Replacement of Existing Concrete Layers
 - 7.4 Reinstatement of Slab Support by Grout Injection
 - 7.5 Reinstatement of Riding Quality
 - 7.6 Reinstatement of Surface Texture
- Each with the 4 Parts

32 pages



Chapter 13 Structures

- Chapter 13 has fourteen Sections viz;
 - 13.1 Foundations
 - 13.2 Falsework, Formwork and Concrete Finish
 - 13.3 Steel Reinforcement
 - 13.4 Concrete
 - 13.5 Prestressing
 - 13.6 Bearings
 - 13.7 Joints
 - Each with the 4 Parts



Chapter 13 Structures

- Chapter 13 has fourteen Sections cont.
 - 13.8 Ancillary Structural Elements
 - 13.9 Structural Steelwork for Minor Structures
 - 13.10 Painting of Minor Structures
 - 13.11 Structural Steelwork for Major Structures
 - 13.12 Structural Steel Protective Treatment of Major Structures
 - 13.13 Incremental Launching of Bridge Decks
 - 13.14 Specialist Structures
 - Each with the 4 Parts



Chapter 14 Repair and Rehabilitation of Structures

- Chapter 14 has eleven Sections viz;
 - 14.1 Access for Bridge Rehabilitation
 - 14.2 Corrosion Survey Methods and Testing of Near-Surface Concrete Properties
 - 14.3 Demolition and Removal of Structural Concrete and Steelwork
 - 14.4 Surface and Structural Repair of Concrete Members
 - 14.5 Anchoring of Reinforcement, Grouting and Crack Injection
 - 14.6 Sprayed Concrete for Structures
 - 14.7 Protective Coatings and Treatment for Concrete
 - Each with the 4 Parts



Chapter 14 Repair and Rehabilitation of Structures

- Chapter 14 has eleven Sections cont.
 - 14.8 External Bonding of Steel and Carbon Fibre
 - 14.9 Repair and Replacement of Ancillary Steel Structures
 - 14.10 Jacking of Bridge Structures
 - 14.11 Repair of Steel Elements
 - Each with the 4 Parts



Upcoming SANRAL Projects



Project Pipeline 2021/22 to 2023/24

Project Type	Non-Toll		Toll		Total	
	Design	Construction	Design	Construction	Design	Construction
Routine maintenance	136	128	69	65	205	193
Periodic maintenance	197	11	33	2	230	13
Special maintenance	78	21	13	0	91	21
Community projects	84	13	6	0	90	13
Strengthening	27	10	7	0	34	10
Improvements	111	38	7	7	118	45
New facilities	123	34	38	10	161	44
Totals	756	255	173	84	929	339
	1011		257		1268	

New tenders = $(1268 - 678) \times 2 = 1180$ over three years



Annual Plan 2021/22

SANRAL Office	Projects	Estimated Value (R billion)
ER	99	R 23, 176
HO	50	R 3 465
NR	115	R22 576
SR	44	R9 479
WR	107	R3 560
Total	415	R62 259



N3/N2 Projects in KZN





N3 Pietermaritzburg to Durban

- Widening to 4 lanes each way
- Reconfiguration of most interchanges
- Thirteen detailed design packages
- May be broken down into smaller construction packages
- Some awarded already
- Concrete Volumes
 - Structures 340 000 m³
 - Pavements 310 000 m³



N2 UPGRADE PACKAGES: Lovu River to Umdloti



N3 Umdloti to Amamzintoti

- Widening to 4 lanes each way
- Reconfiguration of most interchanges
- Seven detailed design packages
- May be broken down into smaller construction packages
- Concrete Volumes
 - Structures 165 000 m³
 - Pavements 810 000 m³ (all in one project)



Thank You

