



SESSION 1.8 TERMS OF REFERENCE

CONDUCTING ROAD SAFETY AUDITS & APPRAISALS

PRESENTED BY: RTS & AGTTC

6 – 7 June 2023



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REQUIREMENTS FOR SUCCESSFUL RSA

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Requirements for Successful RSA

Client organization requirements



Commitment from management



A recognised and agreed Road Safety Audit process



The development of expertise



Formal audit report response and implementation



Evaluation and monitoring

Requirements for Successful RSA

What does the audit team require



Detailed terms of reference



Adequate time



(Extensive) Project information



Appropriate experience



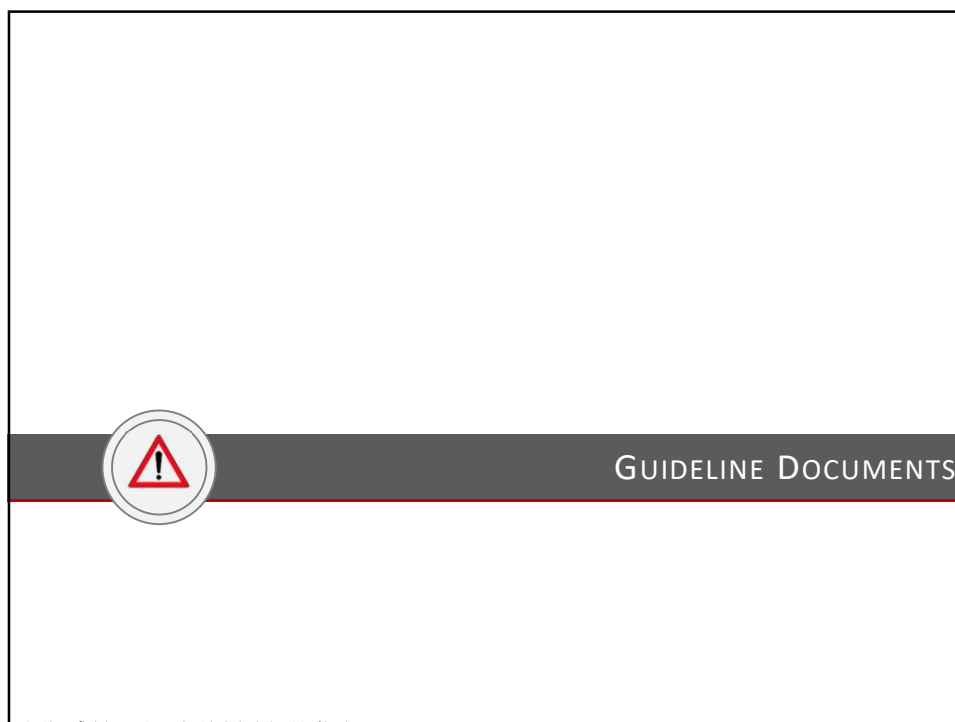
Independence



Prompt lists ??



RSAs are not a tick box exercise - audit by prompt list is not recommended.



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Guideline Documents

ISBN 978-0-626-27261-4 **SANS 3000-2-2-1:2012**
RSR 2-2-1:2012
Part 1
Edition 1

SOUTH AFRICAN NATIONAL STANDARD

Railway safety management

Part 2-2-1: Technical requirements for engineering and operational standards — Track, civil and electrical infrastructure — Level crossings

WARNING — Can only be read in conjunction with SANS 3000-2-1 and SANS 3000-2-2.

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Guideline Documents – African Countries

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Manuel d'Intégration de la Sécurité Routière aux Projets Routiers - Benin (2007)	Road Safety Audit Manual (Draft) - Federal Democratic Republic of Ethiopia (2004)	Manual of Road Safety Audit - Ghana (2002)	Design Manual for Roads and Bridges Part 1b) Road Safety Audit - Kenya (2009)
Guide d'Audit - Sécurité des Infrastructures Routières - Maroc (2003)	Consultancy Services for Road Safety Audit of the Main Road Network Final Report/Servicos de Consultoria Para a Auditoria da Seguranca Rodoviaria na Rede de Estradas Principais em Mozambique - Mozambique (2010)	Guidelines for Mainstreaming Road Safety in Regional trade Corridors - SSATP (2013)	A Guide to Road Safety Auditing v7 - United Republic of Tanzania (2009)
<div style="display: flex; justify-content: space-around; margin-top: 10px;"> <div style="border: 1px solid #ccc; padding: 5px; text-align: center;">South African Road Safety audit Manual (2nd Edition) - South Africa (2012)</div> <div style="border: 1px solid #ccc; padding: 5px; text-align: center;">Road Safety Audit Manual - Uganda (2004)</div> <div style="border: 1px solid #ccc; padding: 5px; text-align: center;">Zambian Road Safety Audit Manual (2016?)</div> </div>			








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TERMS OF REFERENCE CONTENTS



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Importance of the TOR






- Often developed by the design team
- Issued by the Client to the Audit Team
- Must include overview of available information
- Quality of RSA delivered, affected by TOR

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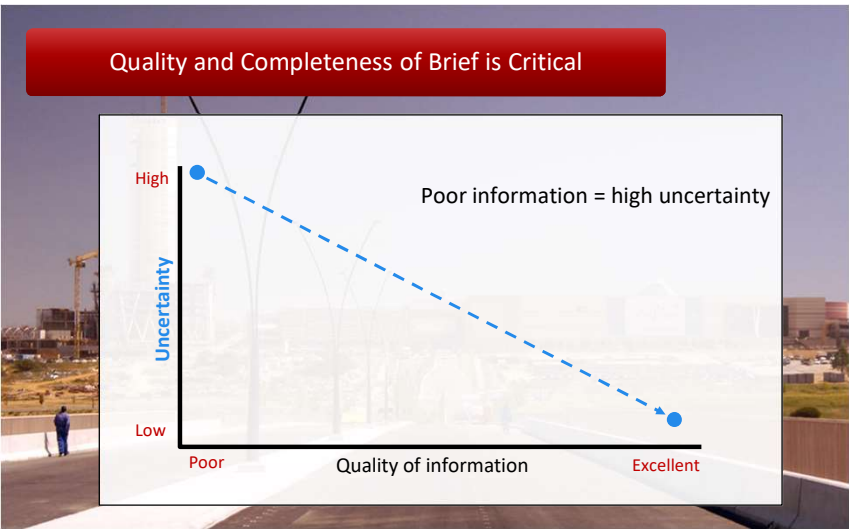




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Importance of the TOR




Quality and Completeness of Brief is Critical



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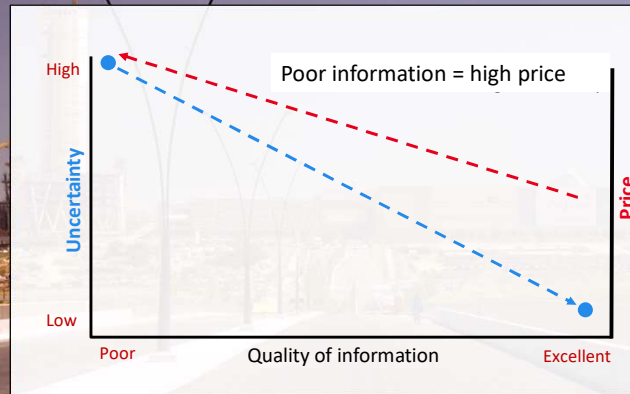




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Importance of the TOR

Quality and Completeness of Brief is Critical



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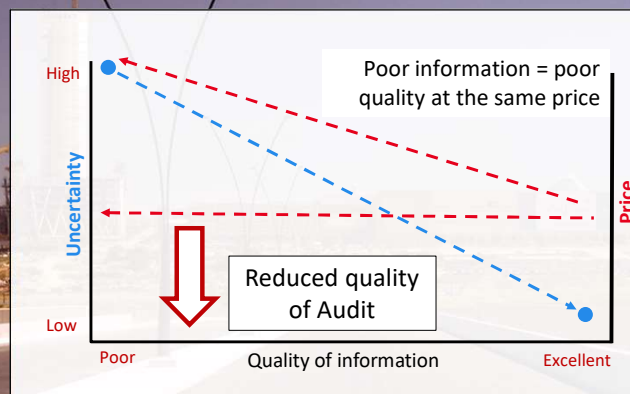


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Audit Brief Contents

Quality and Completeness of Brief is Critical



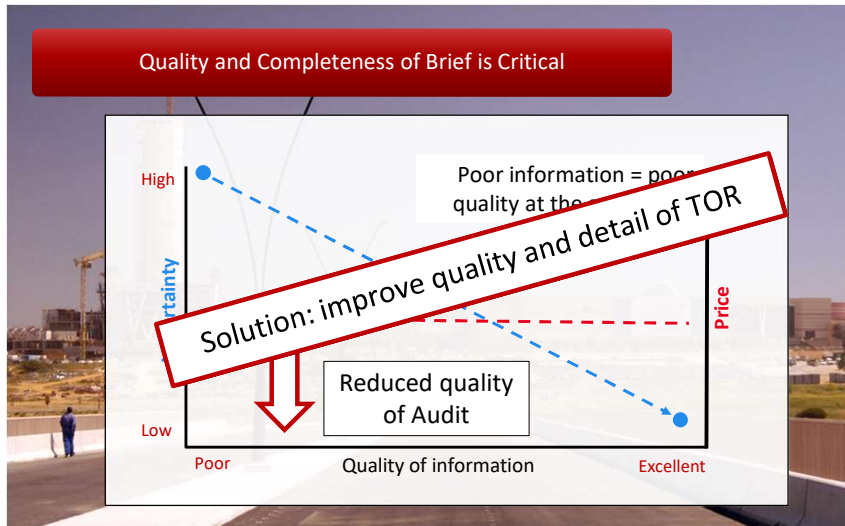
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Importance of the TOR



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Importance of the TOR

TOR Contents

- Project Scope and Background
- Description of the project
- Available Drawings and project information
- Previous road safety studies/ audits
- Applicable RSA phases
- Specific audit requirements
- Audit team requirements
- Pricing Schedule
- Requirements for method statement



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TOR: PROJECT SCOPE AND BACKGROUND

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TOR: Project Scope and Background

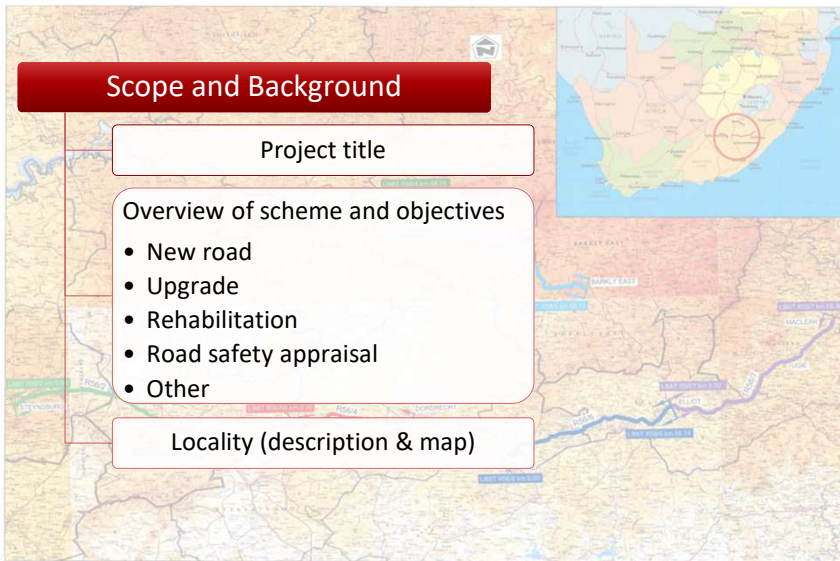
Scope and Background

Project title

Overview of scheme and objectives

- New road
- Upgrade
- Rehabilitation
- Road safety appraisal
- Other

Locality (description & map)



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TOR: Project Scope and Background

Locality

- Overview
- Specific extent is important



Source: SANRAL CONTRACT NRA R.056-067-2014/ITS



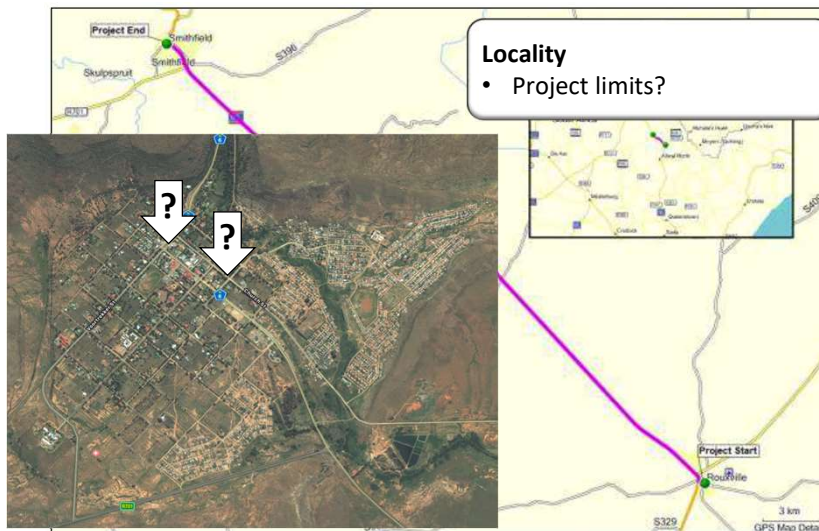
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TOR: Project Scope and Background

Locality

- Project limits?



Source: SANRAL N006-060-2015/1F-RS



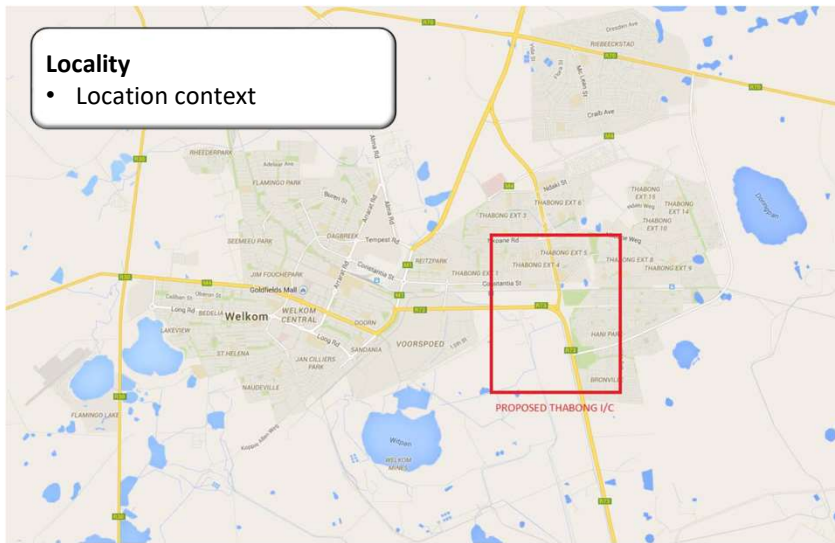
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TOR: Project Scope and Background

Locality

- Location context



Source: SANRAL CONTRACT NRA R730-010-2011/1F RSA,



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TOR: Project Scope and Background

Locality

- Specific project extent




Source: SANRAL CONTRACT NRA R730-010-2011/1F RSA,



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TOR: DESCRIPTION OF THE PROJECT

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TOR: Description of the project

Detailed description of project

- Detailed scope of work
- Project phasing
- Project implementation time frames
- Project alternative (layouts, routes, concepts)
- Project constraints
- For appraisals - background to the facts that lead to the requirement for a safety study.





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TOR: AVAILABLE DRAWINGS AND PROJECT INFORMATION

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TOR: Available Drawings and project information

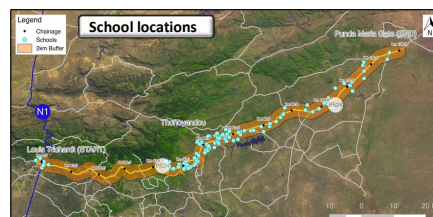
Project information

Available and extent of information impact on perception of audit scope.

Direct impact on perception of risk and price quoted.

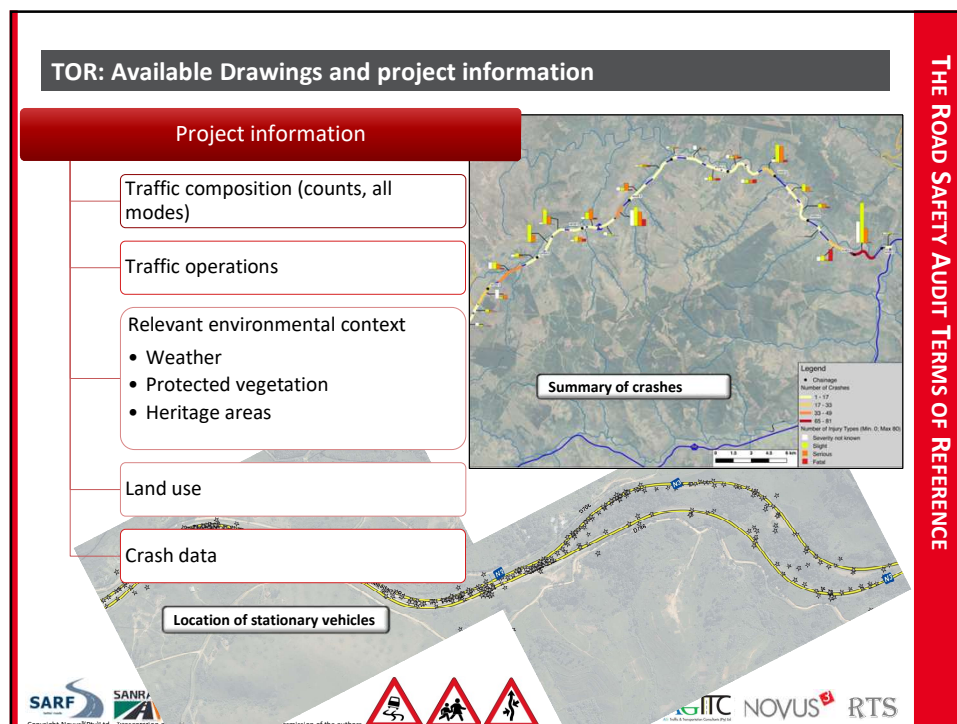
TOR should include project info if it will influence the auditors perception of risk and project scope.

List availability of non critical info.

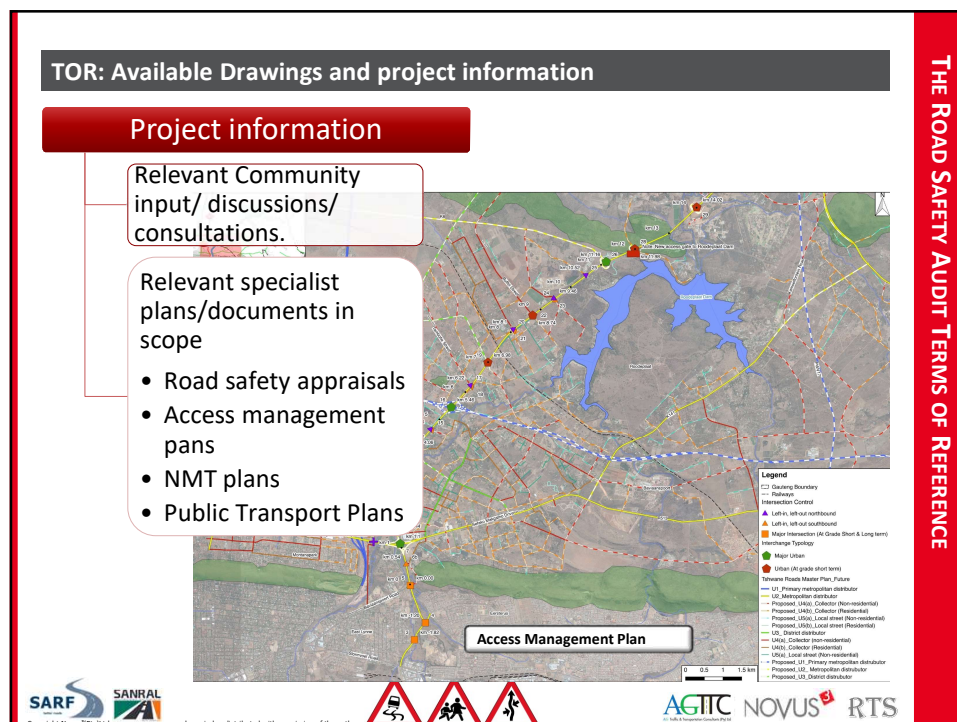


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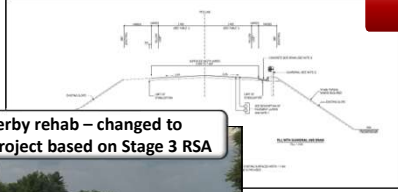


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TOR: Available Drawings and project information




R30 Derby rehab – changed to upgrade project based on Stage 3 RSA




Project information


- Design approach
- Events/facts that lead to notable features of current road.
- List design standards and speed
- Deviations from design standards (with reasons)
- Upgrades/elements of the scheme not shown on design drawings
- Known unresolved road safety risks



Magoebaskloof – bush clearance to improve sight

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TOR: PREVIOUS ROAD SAFETY STUDIES/ AUDITS

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TOR: Previous road safety studies/ audits


Previous RSAs

Copies of previous reports:

- Road Safety Appraisal reports
- Road Safety Audit Reports

Copies of Audit Response Reports


List of all design changes since previous Audits





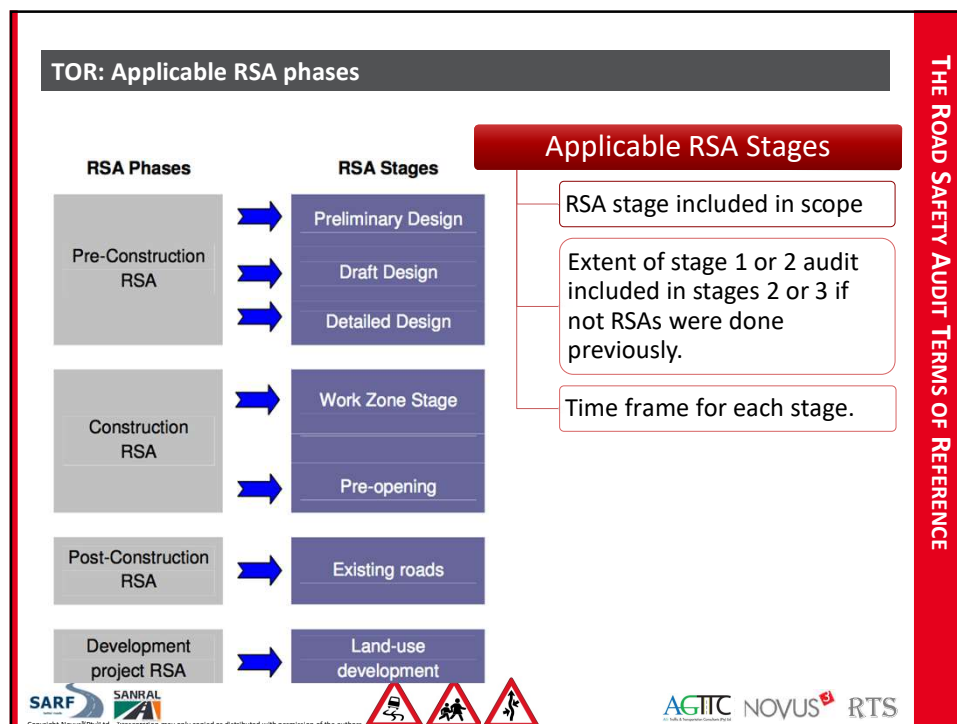




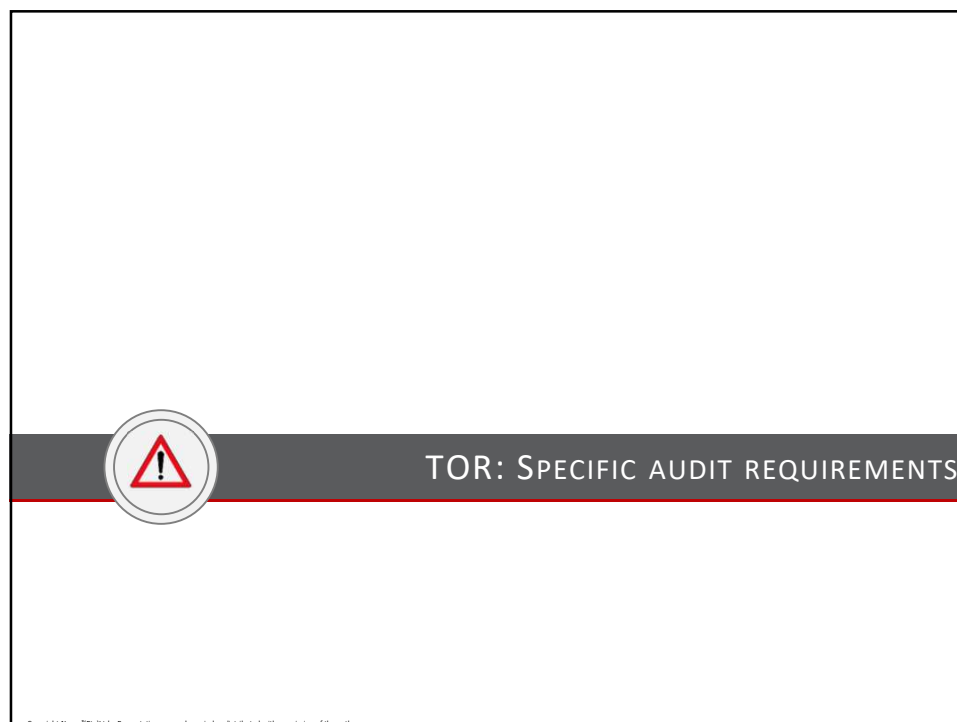



TOR: APPLICABLE RSA PHASES

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TOR: Specific audit requirements

Specific audit requirements

Elements of project not included in audit.

Note design elements or safety risks for which specific audit opinion is required.

Indicate specific factors which need to be considered, which could be perceived to be excluded from the scope.

Special requirements in terms of time of day/week of site visits.

Number and location of meetings

Contact details of stakeholders which should be consulted.

Any specific site access arrangements.



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TOR: AUDIT TEAM REQUIREMENTS

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TOR: Specific team requirements

Specific team requirements

Specific minimum experience requirements for team.

Appropriate skills

Team Size

Important to specify specialists where required.

Specific local or user group input may be important.

Team as tendered must conduct the audit.



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TOR: SANRAL RSA team requirements

The Service Provider's Road Safety Audit Team Leader shall be permanently employed staff member of the Service Provider; other key persons may be subcontracted.

The minimum requirements of the Road Safety Audit Team Leader:

- must be a Registered Professional Engineer or Professional Engineering Technologist with the Engineering Council of South Africa (ECSA), or international body recognized by the Client,
- Must have at least 10 years of experience post-graduation in Road Safety and/or Traffic and Transportation Engineering and/or Geometric Design,
- Has successfully completed a recognized Road Safety Audit course to the equivalent of at least 5 CPD points,
- Has successfully completed recognized Road Safety courses to the equivalent total of 2 CPD points within the last five (5) years, and
- Has undertaken at least 2 formal Road Safety Audits within a period of three (3) years as the Audit Team Leader or Audit Team member.



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TOR: SANRAL RSA team requirements

The minimum requirements of the Road Safety Audit Team Member:

- Diploma in technology or a Degree in Engineering or equivalent recognised qualification;
- At least 3 years of experience in Traffic and Transportation Engineering and/or Geometric Design and/or Road Safety Audits/Construction.
- Has successfully completed a recognised Road Safety Audit Course to the equivalent of at least 5 CPD points.

It is compulsory for the Service Provider to engage one additional Road Safety Audit team member from QSE/EME companies/firms for capacity building in order to achieve the transformation objectives of the Client.



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TOR: PRICING SCHEDULE

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TOR: Pricing Schedule

Pricing Schedule

Avoid generic pricing schedules.

Allow for different tasks per stage.

Disbursements (travel)

Data collection (if data is not available)

- Counts
- Crash data

1. PROFESSIONAL SERVICES WORK BREAKDOWN	HOURS PER PERSON		
	Engineer	Technologist	Other
a) Brief by Project Engineers regarding entire future road scheme and implementation schedule			
b) Road Safety Inspection			
c) Stage 3 Road Safety Audit of the draft tender drawings and design report, production of Draft Road Safety Audit Report			
d) Incorporation of findings and production of the Final Road Safety Audit Report			
TOTAL HOURS PER CATEGORY			
RATE PER CATEGORY (R per hour)			
TOTALS PER CATEGORY			
SUB-TOTAL PROFESSIONAL SERVICES LUMP SUM			

2. DISBURSEMENTS	Unit	Qty	Rate	Amount
a) Travel	Km			
b) Accommodation	Day			
c) Other (meetings, venues, photographs, printing of reports, etc.)	Lump Sum			
d) Allowance for additional requirements by the Employer	Prov Sum	1	50 000.00	50 000.00
SUB-TOTAL DISBURSEMENTS LUMP SUM				

PROFESSIONAL SERVICES AND DISBURSEMENTS LUMP SUM

R.....

VAT @ 14%

R.....

TOTAL QUOTATION SUM CARRIED TO FORM OF QUOTATION

R.....

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TOR: REQUIREMENTS FOR METHOD STATEMENT

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TOR: Requirements for Method Statement

Requirements for Method Statement

Specify extent of method statement required.

Equipment to be used for audit.

Site visit, extent, team.

Examples of previous audit outputs.

Team specific approach for the audit




Figure 3-3: Guardrail with its connection to balustrade










Figure 3-4: Guardrail with bolted connection to balustrade




Overview of Audit Report Findings		Audit Team Comments	Audit Team Finding
<div style="background-color: #c00; color: white; padding: 2px; font-size: 0.7em;">Audit Design Report Reference</div>	<p>Existing guardrails at bridges were not tied properly to the balustrades. The following guardrail/balustrade interactions were observed:</p> <ul style="list-style-type: none"> No connection to balustrade Bolted connection to balustrade <p>The two interactions listed are shown in Figure 3-3 and Figure 3-4 for no connection and a bolted connection respectively.</p> <p>The detail design drawings for the proposed new guardrails do not offer the detail required to determine the adequacy of the connection.</p>	<p>The guardrails should be tied to the front of the balustrades.</p>	


General Risks Applicable to Both Options		Likelihood	Severity	Risk Rating
1.	Road Signage, markings and guardrails	Probable	Serious	Intolerable
2.	Intersection Configuration upgrades	Occasional	Serious	High
3.	Intersection Configuration upgrades	Occasional	Catastrophic	Intolerable
4.	Road Alignment	Probable	Serious	Intolerable
5.	Bridge Parapets	Occasional	Catastrophic	Intolerable





END OF LECTURE

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