Manage RMM Projects

Welcome

I'VE COME HERE TO SHARE ALL MY EXPERIENCE AND KNOWLEDGE – IT'S UP TO YOU WHAT YOU TAKE AWAY WITH YOU

Lecturer: Marthinus Wilken

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Manage RMM Projects

Specific Outcome 3:

MANAGE, COORDINATE AND OPERATE THE RRM PROJECT

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Manage RMM Projects
Managing, Coordinating & Operating

The purpose of this Specific Outcome is to enable agency project managers, Route Managers, site agents or persons of similar responsibility on Routine Road Maintenance (RRM) projects to manage, coordinate and operate the RRM project during the contract period.

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Manage RMM Projects
Managing, Coordinating & Operating

- Understand the role and duties of the project management team
- Understand the soft skills required for the position of Route Manager
- Preparation for execution of activities (method statement and training test section)
- Understand why critical duties should receive priority
- Understand the importance of financial management

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3.1 The role & duties

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The Client appoints a service provider to perform consulting engineering services (prepare tender documents, manage tender process, manage contract after award until completion) for a specific project.

A contractor is appointed by the client to execute the work for the project according to the specifications stated in the tender documents.

The representative of the client is called the project engineer. Normally, the representatives from the service provider are called the engineer and resident engineer.

The RRM environment the engineer is called the Works Contract Engineer and the resident engineer the Route Manager.

In the PMT the client takes the lead and acts as 'chairman' during meetings.

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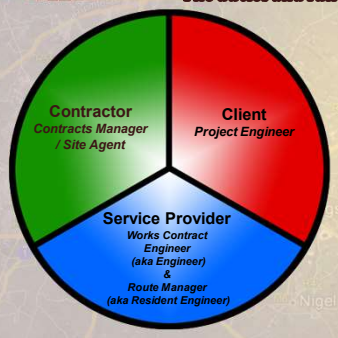
3.1 The role & duties

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT



The Project Management Team (PMT)

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3.1 The role & duties

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Determine the scope and extent of the works to be included in any particular subcontract;

Determine the target tender price for the subcontract, according to the scope of work and adjusting the target rates where relevant;

Make decisions regarding the tender pre-qualification process;

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3.1 The role & duties

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Adjudicate and approve subcontract tenders;

Approve the extension of subcontracts, which shall be subject to satisfactory performance by the subcontractor;

Monitor the management of the subcontracts involving Targeted Enterprises;

Monitor the training, mentoring and development of Targeted Enterprises; and

Monitor the Contractor's performance evaluation system of Targeted Enterprises.

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Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The Works Contract Engineer acts as agent of the Employer during the construction period, and is appointed in the contract when it is awarded to the service provider, based on the project team proposed at tender stage.

The Works Contract Engineer is responsible to administer the contract in accordance with the provisions of the contract.

He must carry out all duties and functions as required in terms of the contract.

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Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Order acceptance control tests, receive quality control test results from Contractor and consider approval.

Reference repair positions, pointing out of beacons and arranging re-installation of disturbed beacons.

Approval of the Contractor's signs, notices and advertisements on site.

Negotiations regarding borrow-pits and/or occupation of adjacent property by the Contractor.

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Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Assessment of any damage to the road or road furniture prior to commencement of the work and arrangement for repair of damage by the Contractor during the course of the project.

Ordering of remedial work when necessary.

Approving/disapproving the use of explosives.

Receiving and control of daily records from the Contractor.

Assessment of claims for additional compensation.

Arrangement of periodic meetings with Contractor and Client.

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Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Classification of different classes of excavation.

Establishing regular contact with community liaison officer.

Monitoring the execution of training.

Approving of Contractor's establishment on site and the extent thereof.

Determining the extent of provision of offices and communication and other facilities, etc., for the Engineer's personnel and approval thereof.

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3.1 The role & duties
3.1.1 The Works Contract Engineer

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Approval and control of proposed and actual measures taken to accommodate traffic for different maintenance activities. Also consider traffic safety officer, penalties.

Progress and weekly meetings to be held.

Monitor route patrol activities, assess and control daily reports.

Assess and control daily inspection reports.

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3.1 The role & duties
3.1.2 The Route Manager

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The Route Manager for a RRM project is appointed, along with the Works Contract Engineer, in the contract when it is awarded to the consulting engineers, based on the project team proposed at tender stage.

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3.1 The role & duties
3.1.2 The Route Manager

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Monitoring and reporting of the Contractor's works programme.

Implement Engineer's quality control plan.

Monitor Contractor's quality control plan through on works inspections.

Site audits, inspection, quality control testing, approval, rejection of work.

Measurement and certification of completed work inclusive of cash flow forecasts.

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3.1 The role & duties
3.1.2 The Route Manager

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Regular Site Meetings with Contractor and Employer

Monitoring of the Contractor's third party claims

Monitoring and reporting of Contractor's CPG commitments

Supervision of traffic accommodation arrangements

Attend public liaison committee meetings

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3.1 The role & duties
3.1.2 The Route Manager

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Implement the Engineers requirements in terms of compliance with the OHS Act (See OHS Act on Reference CD)

Monitor the Contractor's compliance with the OHS Act

Compile all reports and as-built data in accordance with the Employer's standard requirements

Report on the Service Provider, Contractor and sub-contractors BEE information as required by the Employer

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3.1 The role & duties
3.1.3 Contractors Representative

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The Contracts Manager or Site Agent is the representative of the Contractor and has all the authority necessary to act as agent for the Contractor and 'shall design (to the extent specified in the Contract), execute and complete the Works in accordance with the Contract and with the Engineer's instructions, and shall remedy any defects in the Works'.

The Contractors Representative, (Site Agent), is appointed through the contract when the contract is awarded to the contractor.

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3.1 The role & duties
3.1.3 Contractors Representative

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The contractors' management team and experience is included in the contract document.

Experience requirements vary and can be specified in the contract document for example:

Contract management experience – 5 years

Routine road maintenance experience – 5 years

Road rehabilitation experience – 3 years

Community liaison experience – 5 years

Road safety experience – 5 years

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3.1 The role & duties
3.1.3 Contractors Representative

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

Other general responsibilities of the Contractor:

Identify work to be executed, and submit these to the RM who will determine which work must be carried out;

Institute a quality assurance system;

Provide training, mentoring, guidance and assistance to Targeted Enterprises; and

Ensure that the contract goals and objectives are achieved.

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3.1 The role & duties
3.1.3 Contractors Representative

Manage RMM Projects
Managing, Coordinating & Operating
The duties and functions of the PMT

The Site Agent is also responsible for the adequacy, stability and safety of all site operations and all methods of construction.

This function can be delegated by the contractor in writing to the safety officer, who's CV was submitted to the PMT and approved by the PMT.

In terms of the methods of construction utilised on site, it is crucial that the safety officer compile a risk assessment for each work activity, prepare a method for completing each work activity and describes the PPE required for the activity.

The risk assessment is submitted to the Works Contract Engineer who approves the risk assessment.

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3.2 Planning for execution of activities

Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

Works planning should be done before any activities commence on a Routine Road Maintenance project.

Cooperation between the Contractor and the Engineer or Route Manager during this works planning phase, in terms of complete method statements for each activity and training test sections, will reduce the occurrence of misinterpretation of specifications and work that is not to standard.

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3.2 Planning for execution of activities
3.2.1 Method Statements

Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

A method statement is a shortened version of the contract and tender for a specific activity.

It includes allowable costs, production to be achieved, resources allocated, quality requirements as well as the construction method.

It must serve as an instant reference on site, at meetings and in the office.

The entire team must be aware of what is contained in the method statement, especially how work should be executed and to what standard.

Method statements should be summarised on one, maximum two pages.

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3.2 Planning for execution of activities
3.2.1 Method Statements

Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

IMPORTANT

The Engineer or Route Manager evaluates the method statement to ensure that the construction method proposed will yield an end product that will comply with specification.

The Contractor uses this information to decide on the team to execute the activity and the quality standard.

After agreement on a method statement by the PMT, there should be no ambiguities as to the interpretation of the specification and quality of work expected.

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The method statement must include the following:

1. The re-tender sheet
2. The Standard Cross Section
3. The end product Specification
4. The construction method
5. The resource requirement
6. The tool requirement

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The purpose of training test sections should be clearly distinguished from trial sections.

A trial section is defined as follows: 'prior to commencing with the construction of the specified layer, the contractor shall construct a trial section of the specified layer, … to demonstrate the capability of the contractor to construct the specified layer in accordance with the specifications' or 'that the equipment and procedure he proposes to use will result in him constructing the layers in accordance with the specification'.

A training test section forms part of the Targeted Procurement Procedure as described in the contract document under the heading Training, Coaching, Guidance and Mentoring.

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Training:

It would involve the theory of how to calculate the amount of cement required for a section at the percentage specified; how to calculate the spacing for setting out the cement bags; the mixing procedure for stabilisation; compaction and the curing of the layer.

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Coaching:

The learners are taken to site to construct a cement stabilised layer. The coach would check every step of the construction of the layer to ensure it is done as explained during training. Once the learners understands and can do the task, he only checks in periodically.

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Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

Guidance:

Is anticipating where one might go wrong, or where one is doing a task in a complicated, inefficient or ineffective way, and giving advice as to how to achieve a better result. Guidance is mostly given by a person in the direct reporting line, such as a foreman, but can be given by anyone. Guidance is not imparting skills, but suggesting ways to improve performance.

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Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

Mentoring:

Is developing a person on a long-term career path. It is mostly about imparting skills that are often intangible and non-measurable. During the training test section, learners with potential leadership skills can be identified to mentor into becoming foremen.

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Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities

PERFECTING THE METHOD OF CONSTRUCTION MUST LEAD TO OBTAINING THE SPECIFIED RESULT

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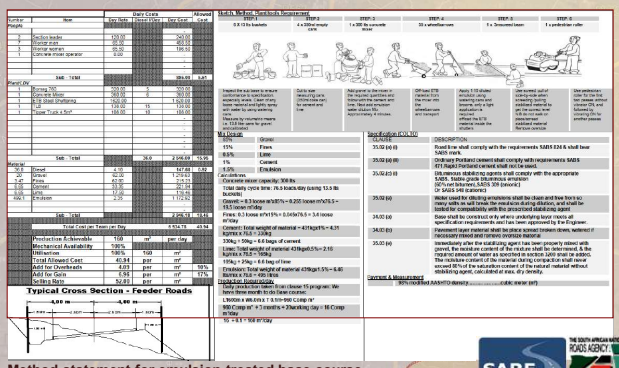
Manage RMM Projects
Managing, Coordinating & Operating
Planning for execution of activities



Method statement for emulsion treated base course

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3.2 Soft skills

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

A Route Manager must be able to manage people in order to successfully maintain a RRM road section.

Since Route Managers are technically qualified persons, they must put special effort into being effective managers.

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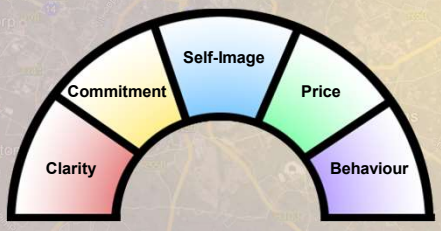
3.2 Soft skills

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM



(Mann, 2002)

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3.3 Soft skills
3.3.1 Clarity

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

Am I clear about what I want from this person?

And are they clear about what I want?

Without clarity it is very difficult to get anything done (Mann, 2002).

Example:
The RM instructs the contractor to cut a tree which is obscuring sight at an intersection, but does not clearly indicate which tree and how he wants it cut. The contractor continues with the work but on inspection the RM finds the wrong tree cut. Time and effort has been wasted where he could have given a schematic drawing to indicate the tree or indicate it on site.

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3.3 Soft skills
3.3.2 Commitment

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

Commitment is essential in business and can operate on various levels; one can be committed to the company, or to the manager, or to a particular task. People are committed when they have a good reason for doing something (Mann, 2002). The difference between being committed and involved can be illustrated by considering the following:

The chicken is involved in breakfast by contributing the egg, but the pig is committed to breakfast by giving the bacon.

For example:

A RM that is committed to his work will inspect his route every day if possible and will follow up on all JIs to ensure his route is in the best possible condition it can be.

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3.3 Soft skills
3.3.3 Self-image

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

People do not perform above or below their self-image.

Further more your self-image will determine how you deal with other people.

People must be treated like adults and not as children with you in the parent position or vice versa (Mann, 2002).

Example:
The safety officer with a low self-image will treat everybody he deals with like children, making them feel small in the way he talks to them.

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3.3 Soft skills
3.3.4 Price

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

Price, not necessarily referring to money, is the cost to the person to do what is being asked. Price can refer to situational, emotional and preference.

Staff members have to pay a price to perform and it is often the reason they do not (Mann, 2002).

Example:
The assistant route manager is not inspecting the route daily, but rather stays in the office and only goes on inspection when asked to do so. When confronted, he admits to being the only breadwinner among 10 of his family members and therefore cannot afford the fuel required to inspect the route daily. The price of not performing at work is less than not supporting the family.

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3.3 Soft skills
3.3.5 Behaviour

Manage RMM Projects
Managing, Coordinating & Operating
Soft skills required for the position of the RM

Behaviour is the way one acts or conducts oneself, not the way one feel or thinks. A behaviour problem can be as a result of a lack of knowledge or skills, self-discipline, attention to detail or focus. Behaviour can be changed and a good manager can help staff to better their behaviour (Mann, 2002).

Example:
A RM notices that his young assistant is often challenged on decisions and does not know how to handle the situation. He starts to take the assistant along where such situations are anticipated. By example and discussing the situation afterwards with the assistant, the assistant start to build confidence and skills on how to approach such situations.

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3.4 Critical duties

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

The most crucial activity of the RM is to ensure that maintenance on a route is done to prolong the live of the asset at hand.

Although all duties of the Route Manager should receive due priority, certain key duties should be emphasised and without which the successful management of a RRM project is not possible.

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3.4 Critical duties
3.4.1 Site management system

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Every agency should have its own site management system in place to provide a framework within which staff can operate. Such a system should aim to:

Standardise site activities,

Limit errors in the delivery of road maintenance service and

Ensure high level of maintenance through quality work.

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3.4 Critical duties
3.4.1 Site management system

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Procedures and forms of a site management system:

Procedures
- Accommodation of traffic
- Attending to complaints
- Bridge maintenance inspections
- ⚠ Completion of the daily activity report
- Environmental management plan
- ⚠ Incident Management System
- ⚠ Inspecting and accepting the works
- ⚠ Inspection for payment of performance based payment items
- ⚠ Issuing of job instructions
- ⚠ Maintaining of the RE's site diary
- Materials register
- Processing of interim payment certificates

Forms
- ⚠ Amendment to existing Job Instruction
- Procurement of materials
- Drawings register
- As-built drawings transmittal
- Bridge maintenance inspection
- ⚠ Route patrol register
- Materials register
- ⚠ Site Instruction
- ⚠ Inspection request
- ⚠ Measurement of Work Done
- Measurement of work done query
- ⚠ Schedule of Work Done

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3.4 Critical duties
3.4.1 Site management system

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Procedures and forms of a site management system (Cont.):

Procedures
- ⚠ Recording of the inspection of completed works and measurement of quantities for payment
- ⚠ Route patrol
- Site filing system
- Statutory control on behalf of SANRAL
- Tendering by ABEs / SMEs

Forms
- Variation Order
- ⚠ Resident Engineer's Site Diary
- ⚠ Daily Activity Report
- Information Request Book
- Communications Schedule
- ⚠ Emergency Call-out Record
- ⚠ Complaint / Request Registration
- ⚠ Road accident report
- Audit Findings Report
- ⚠ Monthly Self-Audit report
- ⚠ Job Instruction (Specimen: Pre-printed)

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3.4 Critical duties
3.4.1 Site management system
3.4.1.1 Regular inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Apart from the administrative guidance a site management system gives, it also relies on regular inspection of the road section to ensure a high level of maintenance through quality work.

IMPORTANT
The Route Manager should inspect the entire RRM road section daily where possible.

The consultant's contract document includes a table stating the minimum acceptable inspection rate by the RM.

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3.4 Critical duties
3.4.1 Site management system
3.4.1.1 Regular inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Inspection of:	MINIMUM frequency:
Road traffic signs	Annually
Road marking	Annually
Guardrails	**Weekly**
Structures	Annually
Flexible road condition	Annually
Rigid road condition	Annually
Drainage	**Monthly**
Slope Instabilities and applicable recommendations	Varies
Informal settlements	**Weekly**
Illegal accesses and signage	**Weekly**
Fencing	**Monthly**

Minimum inspection frequencies

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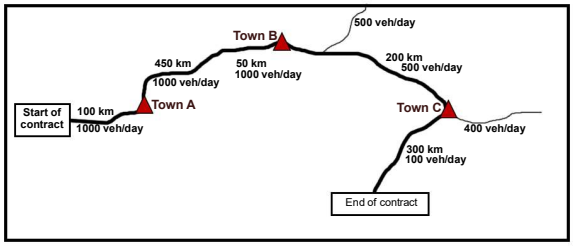
3.4 Critical duties
3.4.1 Site management system
3.4.2.1 Regular inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Example:
An 1050 km RRM project in the Northern Cape stretches from through Town A, B and C The distances and traffic volumes or road usage is indicated in Figure 3.3. It is clear from Figure 3.3 that the first 600 km of the route is used more than the remaining parts, with the last 300 km barely being trafficked.



A ROUTE MANAGER SHOULD INSPECT THE RRM ROAD SECTION DAILY OR AS REGULAR AS POSSIBLE

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3.4 Critical duties
3.4.1 Site management system
3.4.1.1 Regular inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Flow diagram of actions undertaken during inspection

INSPECTION → **PROBLEMS** → **SOLUTIONS**

Road traffic signs
Road marking
Guardrails
Structures
Flexible road condition
Rigid road condition
Gravel road condition
Drainage
Slope instabilities
Informal settlements
Illegal access & signage
Fencing

Job Instruction (JI)

Activity	√
Km to km	√
Date issued	√
Date complete	√

Inspection

Activity	√
Km to km	√
Date issued	√
Date complete	√

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

ONE MAINTENANCE ACTION =

ONE SITE =

ONE JOB INSTRUCTION

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Agency logo

JI No: 112589

DATE: 12/05/2010

JI numbers and date issued are used to cross check quantities in the payment certificate

JOB INSTRUCTION

JOB CATEGORY : Routine X | Special | Accident | Other

POSITION OF WORK : Carriageway X | Interchange | General

Give proper 'Position of Work' information to enable easy location of the work

Route : N 1 Section : 15
Start km : 13.2 End km : 13.5

Direction : Positive (+) | Negative (-) | Both X

DESCRIPTION OF WORK : Repair 4 lengths of guardrails in median

VOs must be approved by the Employer

A brief description of the work required at the location of work should be given

VARIATION ORDER WORK : Yes | No X VO Number :

DAYWORKS : Yes | No X Section M9100 : Yes | No X

COMPLETION DUE BY X
OR OR
Date: 19/05/2010 Time: 15

SARF

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Accepted completion times are usually specified in the contract documentation

COMPLETION DUE BY X
OR OR
RESPOND BY
Date: 19/05/2010 Time: 16:00

Engineer's Representative: M. Thembu Date: 12/05/2010 Time: 08:30

COMMENCED ON: Date: 13/05/2010 Time: 07:00

COMPLETED ON: Date: 13/05/2010 Time: 15:00

Completion of this section is important when claims arise due to outstanding maintenance work

ALLOCATED PROJECT:
Wheelbarrow Construction

Item No	Rate	Quantity	Cost
BM440.06 a	R 10	250	R 2500
BM440.06 e	R 10	3	R 30
BM440.06 f	R 10	15	R 150
		Total estimated cost	R 2680

SoQ item number, rate, quantity and estimated cost of job is noted in this section. This estimation is used to monitor expenditure during the month

Instruction received
on behalf of Contractor: Z. Msinga

The instruction should reach the Contractor as soon as possible

SARF

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

Example: A typical work inspection form

Agency logo	INSPECTION REQUEST	
ROUTE: N 1-15	JOB INSTRUCTION (JI) No.: 112589	
INSPECTION REQUESTED ON:	15/05/2010	
SUBCONTRACTOR:	Wheelbarrow Construction	
INSPECTION TO BE DONE BY:	M. Thembu	
INSPECTION REQUEST RECEIVED ON:	16/05/2010	
ACTUAL INSPECTION:	DATE: 18/05/2010	TIME: 09:00

Cross reference to pertaining JI very important

SECTION	ACTIVITY	QUALITY OF WORK		ACCEPTED / FAILED BY ENGINEER?
		CONTR	ENG	
BM440.06 a	Removal of damaged and re-erection with new, recovered or renovated material: guardrails	Z. M	M. T	Failed
BM440.06 e	Extra over for providing			

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

	erection with new, recovered or renovated material: guardrails	Z. M	M. T	Failed
BM440.06 e	Extra over for providing additional guardrail posts - 5 was required	Z. M	M. T	Failed
BM440.06 f	Guardrail posts	Z. M	M. T	Failed
MEASUREMENT OF WORK ACCEPTED AND SIGNED		CONTR		ENG
REMARKS	Not all bolts are tightened.			
	Height & alignment of guardrails not as specified.			
	Backfill in soil poor - can move posts by hand.			

Here the item no. and activity is listed as on the JI with possible amendments

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3.4 Critical duties
3.4.1 Site management system
3.4.1.2 JIs and inspection

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

GUARDRAIL CHECK LIST			
JI NO:	112589	SUBCONTRACTOR:	Wheelbarrow Construction
ROUTE:	N 1	SECTION:	15
DATE:	18/05/2010	TIME:	09:00

QUALITY OF WORK DONE					
	GOOD	POOR		GOOD	POOR
Alignment		X	Height		X
All bolts tightened		X	Overlap		
Backfill in soil		X	Backfill in concrete		
Reflectors re-erected			New reflectors		
Spacer blocks re-erected			New spacers		
Waste removed					

QUANTITIES			
ITEM	DESCRIPTION	UNIT	QUANTITY
M44.01	Supply & erect new guardrails (galvanised)	m	
M44.02	Supply & erect new curved guardrails (galvanised)	m	
M44.03	Extra over for erection of guardrail posts		
	(a) Soilcrete	No	
	(b) Concrete	No	
M44.04	End-units		
	(a) End wings	No	
	(b) Terminal sections with single guardrails	No	
	(c) Terminal sections with double guardrails	No	
M44.05	Guardrail reflectors	No	
M44.06	Removal of damaged guardrails and re-erection With new, recovered or renovated material		
	(a) Guardrail section	m	
	(b) End wings	No	
	(c) Single terminal	No	

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3.4 Critical duties
3.4.1 Site management system
3.4.1.3 Writing skills

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

It is one of the duties of the Route Manager to have monthly site meetings and to keep minutes of these meetings.

Minutes of meetings are extremely important as it will be used as evidence in disputes, litigation or mediation.

The minutes of meetings should be a true reflection of what was discussed and include record of any decisions that was taken.

Communication to the Employer and the Contractor in the form of letters, notifications, instructions or reports is also the responsibility of the Route Manager.

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3.4 Critical duties
3.4.2 Route Patrol

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

The route patrol service is specified in the particular specifications (M0400) of the RRM contract documents.

The route patrol service should be provided by a route patrol team consisting of a patrol vehicle, equipment and personnel.

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3.4 Critical duties
3.4.2 Route Patrol

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

IMPORTANT
The Route Manager together with the Contractor, prepare a program for patrolling of all routes of the contract preferably twice daily. The patrol officer is responsible for a regular patrol service which is captured on a patrol register, recording all noteworthy incidents. Such incidents include:

The emergency repair of potholes,

Removal of debris from the carriageway and

Any other maintenance actions which is required.

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3.4 Critical duties
3.4.2 Route Patrol

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

General duties of the route patrol service are listed in the form of a checklist below:

Items	Actions required: Report on; Repair if possible; Remove						
Road pavement	Potholes		√		√		
Drainage	Damaged structures		√				
	Block drains		√				
	Ponding of water		√		√		
	Theft of grids		√				
Fencing	Theft of fencing		√				
Road furniture	Damaged road signs		√		√		
	Weather damage		√		√		
	Theft of road signs		√				
	Theft of bridge handrails		√				
Veld fires	Fire fighting until Emergency Services arrive		√		√		
Debris	ALL foreign articles		√				√
Accidents and traffic incidents	Relevant authority according to IMS		√				
	Illegal pedestrians		√				

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3.4 Critical duties
3.4.2 Route Patrol

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

The Route Manager should receive the submitted route patrol register within 24 hours and react to any maintenance actions noted by the route patrol.

For the route patrol to be effective, the patrol officer and his personnel must patrol the route at low speeds (< 80 km/h). If the travelling speed is too high, required maintenance actions might be overlooked.

If possible the patrol officer should have some knowledge of what defects to look for such as cracks, pumping, etc. to enable effective maintenance of a high standard. Training of the route patrol on a training trial section is advised, since the route patrol is the first line of defence on a maintenance project.

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3.4 Critical duties
3.4.2 Route Patrol

Manage RMM Projects
Managing, Coordinating & Operating
Critical duties to receive priority

General duties of the route patrol service are listed in the form of a checklist below:

THE TRAVELLING SPEED OF THE ROUTE PATROL VEHICLE SHOULD BE SUCH THAT NO MAINTENANCE ACTIONS ARE OVERLOOKED DURING PATROL

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3.5 Budget control

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

It is the Route Manager's duty to ensure that expenditure on the RRM contract remains within the yearly approved budget.

Works programming and cash flow forecasting will indicate if the approved budget will be sufficient to do the maintenance work as required.

If the approved budget is not sufficient, a timeous request can be made to the client for additional funding.

If funds are not available, the client will advise which work should be done.

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3.5 Budget control
3.5.1 Budget control

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

The Route Manager should be involved in the project from inception.

It is therefore necessary to understand the financial cycle during the life of a project and definitions of the cycle.

Let us look at the financial cycle pre- and post tender stage.

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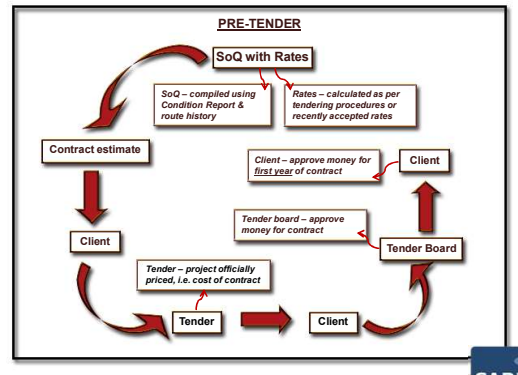
3.5 Budget control
3.5.1 Budget control

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Financial cycle pre- and post tender



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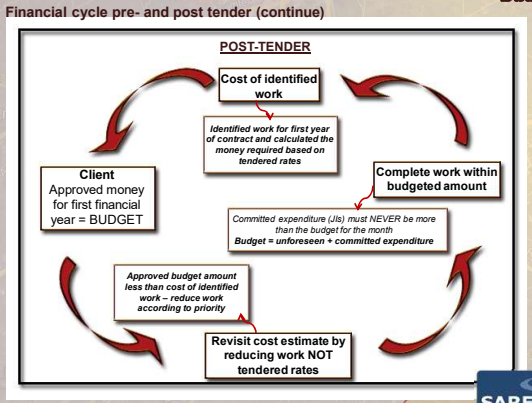
3.5 Budget control
3.5.1 Budget control

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Financial cycle pre- and post tender (continue)



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3.5 Budget control
3.5.1 Budget control

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

IN RRM CONTRACTS, NO QUANTITIES ARE GUARANTEED NOR IS A MINIMUM SET, I.E. WORK TENDERED ON WILL BE DONE AS & WHEN REQUIRED

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3.5 Budget control
3.5.1 Budget control
3.5.1.1 Day to day monitoring

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

An ideal financial management system:

A list of JIs

A list of job measurements per pay item code

A list of job measurements per measurement number

A cost summary of all issued JI's for the payment certificate period (indicating work completed and work still outstanding)

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3.5 Budget control
3.5.1 Budget control
3.5.1.1 Day to day monitoring

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

List of JIs and dates issued

Detail regarding the JI

Date on which JI was approved

Certificate in which JI was paid and amount paid (value of job)

Proj	Job number	Date issued	Route	Section	Start km	Category	Closed	Measure	Date	Meas Final	Q-sched updated	On cert	Job value
1	95552.00	28-Apr-10				Other		95552.01	28-Apr-10	Yes	Yes	21	R 6 270.00
1	95626.00	20-Apr-10	3	12	20	Accident		95626.01	20-Apr-10	Yes	Yes	21	R 9 136.00
1	95627.00	28-Apr-10				Other		95627.01	28-Apr-10	Yes	Yes	21	R 25 435.58
1	95646.00	20-Apr-10				Other		95646.01	20-Apr-10	Yes	Yes	21	R 22 742.50
1	95649.00	20-Apr-10	3	12	33.33	Routine		95649.01	20-Apr-10	Yes	Yes	21	R 737.19
1	95665.00	15-Apr-10	12	18	13	Routine		95665.01	22-Apr-10	No	No	0	R -
1	95757.00	07-Jun-10	3	11	15.4	Routine		95757.01	07-Jun-10	Yes	Yes	22	R 20 000.00
1	97087.00	06-May-10	12	18	13.4	Routine		97087.01	01-Jun-10	Yes	Yes	22	R 14 216.40
1	97361.00	03-Jun-10				Other		97361.01	03-Jun-10	Yes	Yes	22	R 33 200.00

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

IMPORTANT :

A financial management system should also be able to easily produce payment certificates at the end of each month based on the day to day monitoring that was captured during the month.

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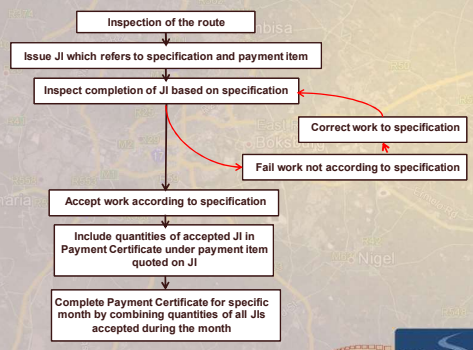
3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Steps to complete a specific months' payment certificate



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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Summary BoQ page of Item M9100 in payment certificate

Original BoQ as submitted by the Contractor

Quantity might have been revised at start of contract

Total This Certificate x Rate = Amount

Item Number	Description	Unit	Quantity Tendered	Quantity Revised	Total Prev. Certificate	This Certificate	Total This Certificate	Rate	Amount
M9100	M9100 : DAYWORKS SCHEDULE								
M910.01	Labour during normal working hours								
	(a) Unskilled	h	1 400.00	1 400.00	1 462.00	144.00	1 606.00	7.50	12 045.00
	(b) Semi-skilled	h	285.00	285.00			0.00	10.50	0.00
	(c) Skilled	h	285.00	285.00	331.00	36.00	367.00	16.00	5 872.00
	(d) Ganger	h	285.00	285.00	99.48		99.48	12.00	1 193.76
	(e) Flagmen	h	314.00	314.00	203.00	18.00	221.00	7.50	1 657.50
M910.02	Labour outside normal working hours								
	(a) Outside normal working hours and Saturdays								
	(j) Unskilled	h	171.00	171.00	20.00		20.00	12.00	240.00
	(iii) Skilled	h	214.00	214.00	62.00		62.00	27.00	1 674.00
	(iv) Ganger	h	31.00	31.00	8.00		8.00	18.00	144.00
	(v) Flagmen	h	17.00	17.00	8.00		8.00	12.00	96.00

Summation of quantities claimed in previous certificates

Quantity claimed in this certificate

Total Prev Certificate + This Certificate = Total This Certificate

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Summary of contract expenditure per sub-section

Sections of BoQ as set out in the contract document

Workone which are claimed for in this certificate

SUMMARY OF CONTRACT EXPENDITURE

MONTH NO.	35	DESCRIPTION AND LENGTHS OF ROAD	Carriageways: Dual divided	Carriageways: Dual undivided	Carriageways: Single	Total
CONTRACT PERIOD	35		16.20	0.00	0.00	16.20

ITEM DESCRIPTION	EXPENDITURE: TENDERED AMOUNT	EXPENDITURE: REVISED SCHEDULE	EXPENDITURE: THIS MONTH	EXPENDITURE: TOTAL TO DATE	EXPENDITURE: TOTAL % TO DATE	COST PER KM: SCHEDULED AVG/MONTH	COST PER KM: THIS MONTH	COST PER KM: AVG TO DATE/MONTH	COST PER KM: AVG TO DATE/YEAR
M0000 : GENERAL	4 079 050.00	4 079 050.00	234 150.00	6 141 300.00	150.6	7 194.09	14 453.70	10 831.57	129 978.83
M1000 : PAVEMENT MAINTENANCE	1 606 225.00	1 606 225.00	0.00	6 500.00	0.4	2 833.85	0.00	11.46	137.57
M2000 : DRAINAGE MAINTENANCE	2 018 239.00	2 018 239.00	86 902.38	1 580 388.70	78.3	3 559.50	5 358.17	2 787.28	33 447.38
M3000 : ROADSIDE MA	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	23 936.13
M4000 : SIGNS AND RO	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	51 645.02
M5000 : PROTECTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.00
M6000 : VEGETATION M	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5 628.55	1 851.85	5 840.83	70 089.91
M7000 : EMERGENCY ASSISTANCE	554 372.00	[illegible]	13 350.00	477 043.90	86.1	977.73	824.12	841.35	10 096.17
M8000 : REPAIR OF MINOR STRUC	115 000.00	115 000.00	0.00	0.00	0.0	202.82	0.00	0.00	0.00
M9000 : DAYWORKS	116 879.50	116 879.50	0.00	219 291.07	187.6	206.14	0.00	386.76	4 641.08
00000 : OTHER	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00
SUBTOTAL	15 627 764.25	15 627 764.25	610 698.04	15 307 681.63	98.0	27 562.20	37 697.46	26 997.68	323 972.09
VO'S/UNSCHEDULED DAYWORKS		0.00	0.00	0.00	0.0				
MATERIALS ON SITE			0.00	0.00					
SPECIAL MATERIALS			0.00	0.00					
CONTINGENCIES	0.00	0.00			0.0				
CPA	1 180 488.21	0.00	50 210.87	740 833.05	0.0				
SUBTOTAL	16 808 252.46	15 627 764.25	660 908.91	16 048 514.68	102.7	27 562.19	40 796.89	28 304.26	339 651.09
LESS : PENALTIES/RED. PAYMENT	0.00	0.00	0.00	0.00	0.0				
LESS : RETENTION	0.00	0.00	0.00	0.00	0.0				
SUBTOTAL	[illegible]	[illegible]	[illegible]	16 048 514.68	102.7	27 562.19	40 796.89	[illegible]	[illegible]
VAT	2 353 155.34	2 187 887.00	92 527.25	2 246 792.06	102.7	3 858.71	5 711.5[illegible]		
TOTAL	19 161 407.80	17 815 651.25	753 436.16	18 295 306.74	102.69	31 420.90	46 508.46		

Cost per section as per tender quantities and rates

Revised cost per section if tendered rates or calculation errors were

Total amount claimed to date in all previous certificates plus this certificate

(Total to date + Revised scheduled amount)=Total % to date

Additional payments to be made (See Fig 3.9 & 3.10 for CPA calculation)

14% VAT calculated at end of all calculations

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Summary of contract expenditure per sub-section (continue)

SUMMARY OF CONTRACT EXPENDITURE

MONTH NO.	35	DESCRIPTION AND LENGTHS OF ROAD	Carriageways: Dual divided	Carriageways: Dual undivided	Carriageways: Single	Total
CONTRACT PERIOD	35		16.20	0.00	0.00	16.20

ITEM DESCRIPTION	EXPENDITURE: TENDERED AMOUNT	EXPENDITURE: REVISED SCHEDULE	EXPENDITURE: THIS MONTH	EXPENDITURE: TOTAL TO DATE	EXPENDITURE: TOTAL % TO DATE	COST PER KM: SCHEDULED AVG/MONTH	COST PER KM: THIS MONTH	COST PER KM: AVG TO DATE/MONTH	COST PER KM: AVG TO DATE/YEAR
M0200 : GENL REQUIREMENTS & PROVISIONS	128 400.00	128 400.00	0.00	18 000.00	14.0	326.46	0.00	31.76	380.98
M0300 : CONTRACTOR'S ESTAB OF SITE & GENL	2 587 000.00	2 587 000.00	[illegible]	[illegible]	[illegible]	[illegible]	9 277.78	6 731.92	80 783.06
M0400 : ROUTE PATROL SERVICES	648 150.00	648 150.00	[illegible]	[illegible]	[illegible]	[illegible]	1 379.63	1 379.63	16 555.56
M0500 : ACCOMMODATION OF TRAFFIC	715 500.00	715 500.00	[illegible]	[illegible]	[illegible]	[illegible]	3 796.30	2 688.27	32 259.26
M1100 : PAVEMENT LAYER REPAIR	821 200.00	821 200.00	0.00	0.00	0.0	1 448.32	0.00	0.00	0.00
M1200 : REPAIR OF POTHOLES	344 610.00	344 610.00	0.00	6 500.00	1.9	607.78	0.00	11.46	137.57
M1300 : SEALING OF ACTIVE CRACKS	285 415.00	285 415.00	0.00	0.00	0.0	503.38	0.00	0.00	0.00
M1500 : CRACK & JOINT SEALING OF CONRETE PAV	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.00	0.00
M1600 : SURFACE TREATMENT - TEXT CORRECTION	97 500.00	97 500.00	0.00	0.00	0.0	171.96	0.00	0.00	0.00
M1700 : REPAIR OF SLOPE FAILURES & WASHAWAYS	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	101.41	0.00	0.00	0.00
M2100 : REPAIR & MAINT OF IN-& OUTLET STRUC	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1 486.91	0.00	351.94	4 223.32
M2300 : CLEANING OF WATERWAY STRUC	34 750.00	34 750.00	0.00	0.00	0.0	61.29	0.00	0.00	0.00
M2400 : CLEANING OF PREFAB CULVERTS	378 000.00	378 000.00	0.00	104 147.47	27.6	666.67	0.00	183.68	2 204.18
M2500 : CLEANING OF CONCR DRAINS & CHANNELS	450 000.00	450 000.00	79 602.38	1 013 184.94	225.2	793.65	4 913.73	1 786.92	21 443.07
M2600 : CLEANING & MAINT OF EXISTING EARTH CHAN	138 420.00	138 420.00	0.00	39 351.00	28.4	244.13	0.00	69.40	832.83
M2700 : EDGE BUILD-UP REMOVAL	22 500.00	22 500.00	7 200.00	217 999.35	968.9	39.68	444.44	384.48	4 613.74
M2800 : CONCRETE CHANNEL CONSTR & MAINT	151 490.00	151 490.00	0.00	6 154.07	4.1	267.18	0.00	10.85	130.24
M3100 : FENCING	306 314.00	306 314.00	189 856.25	735 480.25	240.1	540.24	11 715.52	1 297.14	15 566.72
M3200 : COLLECTION & REMOVAL OF DEBRIS & LITTER	533 600.00	533 600.00	10 750.00	387 000.00	72.5	941.09	[illegible]	[illegible]	[illegible]

Sections of BoQ split into sub-sections, e.g. M1000:Pavement Maintenance is now split into M1100:Pavement Layer Repair, M1200:Repair of Potholes, etc.

Amounts and calculations obtained in a similar manner as in Fig. 3.7

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Summary of contract expenditure per sub-section

SUMMARY OF CONTRACT EXPENDITURE

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M3300 : SHOULDER REPAIRS	329 360.00	329 360.00	0.00	8 502.00	2.6	580.88	0.00	14.99	179.94
M4100 : ERECTION & REPAIR OF PERM ROAD TRAFFIC SIGNS	555 879.00	555 879.00	[illegible]	[illegible]	[illegible]	[illegible]	248.20	270.94	3 251.27
M4200 : ROAD SIGN CLEANING	234 370.50	234 370.50	[illegible]	[illegible]	[illegible]	[illegible]	987.35	87.43	1 049.11
M4300 : ROADSTUDS	57 500.00	57 500.00	0.00	0.00	0.0	101.43	0.00	0.00	0.00
M4400 : GUARDRAIL ERECTION & MAINTENANCE	1 761 533.50	1 761 533.50	25 733.50	2 237 034.50	127.0	3 106.94	1 590.96	3 945.39	47 344.64
M4600 : ROAD MARKINGS	57 500.00	57 500.00	0.00	0.00	0.0	101.41	0.00	0.00	0.00
M5100 : GENERAL EROSION PROTECTION	70 890.00	70 890.00	0.00	0.00	0.0	125.19	0.00	0.00	0.00
M5200 : GABION PROTECTION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	59.62	0.00	0.00	0.00
M6100 : GRASS CUTTING: SHL & GENL MOWING	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4 315.39	1 141.98	4 781.00	57 371.98
M6200 : CHEMICAL CONTROL OF VEG & ERADICATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	441.00	0.00	388.84	4 666.04
M6300 : REMOVAL OF UNDESIRABLE VEG.: PHYSICAL ERAD.	449 016.00	449 016.00	11 500.00	380 452.00	84.7	791.92	709.88	670.99	8 051.89
M6400 : MAINT. & ESTABLISHMENT OF PLANTS, TREES	29 420.00	29 420.00	0.00	0.00	0.0	51.89	0.00	0.00	0.00
M6500 : ESTABLISHMENT OF GRASS	16 078.75	16 078.75	0.00	0.00	0.0	28.36	0.00	0.00	0.00
M7100 : EMERGENCY STANDBY TEAM	394 682.00	394 682.00	12 330.00	431 570.90	109.3	696.09	761.15	761.15	9 133.78
M7200 : ALL EMERGENCY NORMALISATION	159 690.00	159 690.00	1 020.00	45 473.00	28.5	281.64	62.96	80.20	962.39
M8100 : MINOR REPAIR OF STRUCTURES	115 000.00	115 000.00	0.00	0.00	0.0	202.82	[illegible]	[illegible]	[illegible]
M9100 : DAYWORKS SCHEDULE	116 879.50	116 879.50	0.00	219 291.07	187.6	206.14	[illegible]	[illegible]	[illegible]
TOTAL	15 627 574.25	15 627 574.25	610 658.04	15 307 681.43	98.0	27 562.24	37[illegible]	[illegible]	[illegible]

Sections of BoQ split into sub-sections, e.g. M1000:Pavement Maintenance is now split into M1100:Pavement Layer Repair, M1200:Repair of Potholes, etc.

Amounts and calculations obtained in a similar manner as in Fig. 3.7

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Definitions of CPA formula (GCC, 2004)

X	Proportion not subjected to adjustment, stated in the Contract Data and usually 0.1
a+b+c+d=1	Coefficients contained in the Contract Data representing proportions of labour, contractors equipment, material (*excluding* special materials) and fuel.
L	Labour Index for the urban area nearest to the Site as stated in the Contract Data. It shall be the 'Consumer Price Index' of the area
P	Plant Index shall be the 'Civil Engineering Plant Index' as published by Statistics South Africa or available on SAFCEC's website
M	Material Index shall be the 'Civil Engineering Materials Index' as published by Statistics South Africa or available on SAFCEC's website
F	Fuel Index shall be the 'Diesel Index' as published by Statistics South Africa or available on SAFCEC's website.
O	Denotes base indices applicable to the base month as stated in the Contract Data, which is usually one month prior to the closing of the tender. This base date is extremely important.
t	Denotes the current indices applicable to the month in which the last day of the period fall to which the relevant monthly statement relates

SARF

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

CPA calculation sheet

Proportion subject to adjustment & coefficients as per Contract Data

x = 0.15
a = 0.5
b = 0.2
c = 0.25
d = 0.05

Base date: Jun-08
Urban area for labour: Witwatersrand
Magisterial district: Johannesburg
Area for fuel: -

Base date, urban area, etc. as per Contract Data

Base date values for labour, plant, materials & fuel

Values for labour, plant, materials & fuel for August 2008

2: Value of work claimed in Cert 1

f*2 = CPA amount

Month/ Year	Cert. No	Lo	Po	Mo	Fo	Co	Factor (f)	Work done (ac p10)	CP (ac X1)	to p 2
-	-	159.2	168.3	201.8	519.9	0.0		-	-	-
-	-	Lt	Pt	Mt	Ft	Ct	-	-	-	-
Aug-08	1	163.1	175.4	217.3	419.9	0.0	0.0257	24 421.00	628.36	628.36
Sep-08	2	163.6	175.4	218.8	394.3	0.0	0.0266	17 715.00	470.35	[illegible]
Oct-08	3	163.4	175.4	219.8	377.4	0.0	0.0255	26 870.00	684.82	[illegible]
Nov-08	4	163.9	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	9 186.00	1 260.40	3 943.75
Dec-08	5	162.5	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	8 829.00	902.01	3 945.75
Jan-09	6	162.8	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	37 984.00	974.01	4 919.76
Feb-09	7	164.9	193.0	215.7	271.3	0.0	0.0345	36 399.00	1 255.08	6 174.84
Mar-09	8	167.1	193.0	214.8	253.5	0.0	0.0380	30 398.00	1 153.65	7 328.49
Apr-09	9	168.0	193.0	213.3	250.2	0.0	0.0385	30 868.00	1 188.56	8 517.05
May-09	10	168.7	189.2	209.0	250.2	0.0	0.0320	16 594.00	531.12	9 048.17
Jun-09	11	169.0	189.2	208.9	250.2	0.0	0.0348	31 019.00	1 080.65	10 128.82
Jul-09	12	170.9	189.2	211.3	250.2	0.0	0.0403	43 506.00	1 753.38	11 882.20
Aug-09	13	171.8	190.9	210.1	250.2	0.0	0.0432	30 938.00	1 335.23	13 217.44

$$F = (1 - 0.15)\left[0.5\left(\frac{163.1}{159.2}\right) + 0.2\left(\frac{175.4}{168.3}\right) + 0.25\left(\frac{217.3}{201.8}\right) + 0.05\left(\frac{419.9}{519.9}\right)\right]$$

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

CPA summary sheet for payment certificate no. 35

Value of work done for Cert 35

DETERMINING THE VALUE OF WORKS FOR CPA
CONTRACT NO : N.003-120-2008/6 CERTIFICATE : 35
PROJECT NO : MOOJADJI VEGETATION CONTROL

FROM PAGE	DESCRIPTION	VALUE OF ADDITIONS (R)	DEDUCTIONS (R)	TOTAL (R)
3.4	TOTAL FOR SCHEDULED ITEMS	220 470.20		
4.4	100% MATERIALS ON SITE	0.00		
5.4	VO'S (CPA APPLICABLE)	0.00		
6.4	DAYWORKS (CPA APPLICABLE)	0.00		
	TOTAL : (T)	220 470.20		
7.4	NON-ESCALATABLE ITEMS IN SCHEDULE (S+D+E)		0.00	
9.4	TOTAL AMOUNT OF REDUCED PAYMENT (R)		0.00	
12.4	TOTAL ORIGINAL VALUE OF SPECIAL MATERIALS (G)		0.00	
13.4	TOTAL AMOUNT OF PENALTIES (P)		0.00	
	TOTAL : (S+D+E+R+G+P)		0.00	
	TOTAL VALUE OF ESCALATABLE WORKS (A=T-S-D-E-R-G-P)			220 470.20
PREV CERT	PREVIOUS TOTAL VALUE OF ESCALATABLE WORKS (Ap)			210 581.00
	VALUE OF WORK FOR CPA TO PAGE 11.4 (Ac=A-Ap)			9 889.20

Symbols as per definition (Section 3.5.1.2)

Item which are deducted

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3.5 Budget control
3.5.1 Budget control
3.5.1.2 Payment certificates

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Non-escalatable items in the BoQ

NON-ESCALATABLE ITEMS IN SCHEDULE

Item number	Description	From page	Previous Certificates	Current Certificate	Total Amount
M020.06(a)	Engineering skills		R 27 940.00	R -	R 27 940.00
M020.06(f)	The Contractor's overhead charges and profit in respect fo sub-item DM020.06 (a) to (e)		R 2 794.00	R -	R 2 794.00
M210.04(a)	Accessories		R 2 668 975.71	R -	R 2 668 975.71
M210.04(b)	The Contractor's overhead charges and profit in connection with providing the service		R 266 146.27	R -	R 266 146.27
M230.01(a)	Cleaning fo waterway structures, inlet and outlet		R 1 000.00	R -	R 1 000.00
M230.01(b)	The Contractor's overhead charges and profit in respect fo sub-item EM230.01 (a)		R 100.00	R -	R 100.00
M410.15(a)	Purchase of manufactured road signboards		R 966 455.72	R -	R 966 455.72
M410.15(b)	The Contractor's overhead charges and profit in respect with sub-item M410.15(a)		R 96 645.57	R -	R 96 645.57
M810.01(a)	Minor repairs to structures		R 19 095.00	R -	R 19 095.00
M810.01(b)	The Contractor's overhead charges and profit in respect of sub-item M810.01(a)		R 1 909.50	R -	R 1 909.50
M910.04(a)	Procurement of materials		R 1 312 640.42	R -	R 1 312 640.42
M910.04(b)	The Contractor's overhead charges and profit in respect of sub-item M910.04(a)		R 133 423.84	R -	R 133 423.84
M910.06(a)	Providing of security guards on site		R 47 331.75	R -	R 47 331.75
M910.06(b)	The Contractor's overhead charges and profit in respect of sub-item EM910.06(a)		R 4 733.18	R -	R 4 733.18
	TOTAL TO PAGE 10.1		R 5 549 190.96	R -	R 5 549 190.96

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Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Special materials in a RRM contract are usually materials such as bitumen and steel, which are materials where the raw material price can fluctuate significantly.

To calculate the adjustment to the value of the payment certificate claimed, the following formula is used with its definitions of symbols:

$$A_c = A - A_c$$

with

$$A = T - S - D - E - G$$

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Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Definitions of adjustment calculation

T	1. General Items; 2. Work done; and 3. The materials on Site	Summation of 1, 2 & 3 as certified under payment certificate under consideration. Without **ANY** deduction. **BEFORE** any adjustments made.
S	1. Amount actually expended & substituted for any PC sums; 2. Value of work done by Selected Sub-contractors; 3. Value of work done against Prov Sum; 4. Value of any extra/additional work.	Summation of 1 to 4 where special arrangements for price adjustments in respect of those amounts were made & recorded at the time the work was ordered.
D	Value of work included in ***T*** & done at a new fixed rate, where those rates were not based on layout, equipment or material costs in force at time of tendering.	
E	Amount included in ***T*** paid for any daywork executed at cost plus percentage allowances as set out in Conditions of Contract.	
G	Amount included in ***T*** for materials classified as '*special materials*'. The variations in respect of a particular special material shall be calculated by multiplying the difference between the rate/price entered in the Contract Data by the Contractor for that material and the equivalent rate/price actually paid by the Contractor for the material by the quantity of the material in question.	

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Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Special materials schedule

SPECIAL MATERIALS SCHEDULE

					RATES			TOTALS		
Date	Description of Item	Invoice Ref	Quantity (Q)	Unit	Original (Ro)	New (Rn)	Diff (Rd)	Q x Ro	Q x Rd (+ or -)	Cert No
2008/08/31	Guardrails	1	296.00	m	87.93	176.25	88.32	26 027.28	26 142.72	0
2008/09/30	Guardrails	2	408.00	m	87.93	176.25	88.32	35 875.44	36 034.56	0
2008/09/30	150/200(B4) Pen Bitumen	1	0.09	t	1765.00	5851.00	4086.00	158.85	367.74	0
2008/10/30	Guardrails	3	580.00	m	87.93	176.25	88.32	50 999.40	51 225.60	0
2008/11/30	Guardrails	4	352.00	m	87.93	176.25	88.32	30 951.36	31 088.64	0
2008/12/31	Guardrails	5	532.00	m	87.93	176.25	88.32	46 778.76	46 986.24	0
2009/01/31	Guardrails	6	528.00	m	87.93	176.25	88.32	46 427.04	46 632.96	0
2009/02/28	Guardrails	7	2016.00	m	87.93	176.25	88.32	177 266.88	178 053.12	0
2009/03/31	Guardrails	8	0.00	m	87.93	176.25	88.32	0.00	0.00	0
2009/04/30	Guardrails	9	108.00	m	87.93	176.25	88.32	9 496.44	9 538.56	0
2009/05/31	Guardrails	10	384.00	m	87.93	176.25	88.32	33 765.12	33 914.88	0
2009/06/30	Guardrails	11	260.00	m	87.93	176.25	88.32	22 861.80	22 963.20	0
2009/07/31	Guardrails	12	284.00	m	87.93	176.25	88.32	24 972.12	25 082.88	0
2009/08/31	Guardrails	13	244.00	m	87.93	176.25	88.32	21 454.92	21 550.08	0
2009/09/30	Guardrails	14	100.00	m	87.93	176.25	88.32	8 793.00	8 832.00	0
2009/10/31	Guardrails	15	252.00	m	87.93	176.25	88.32	22 158.36	22 256.64	0
2009/11/30	Guardrails	16	140.00	m	87.93	127.50	39.57	12 310.20	5 539.80	0
2009/12/31	Guardrails	17	464.00	m	87.93	127.50	39.57	40 799.52	18 360.48	0
2010/01/31	Guardrails	18	304.00	m	87.93	127.50	39.57	26 730.72	12 029.28	0
2010/02/28	Guardrails	19	272.00	m	87.93	127.50	39.57	23 916.96	10 763.04	0
2010/03/25	Guardrails	20	332.00	m	87.93	127.50	39.57	29 192.76	13 137.24	0
TOTAL ORIGINAL VALUE OF SPECIAL MATERIALS									664 909.65	
FINAL/INTERIM TOTAL VALUE OF SPECIAL MATERIALS TO PAGE NO. 12.4										

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Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Summary page of work done by the contractor and sub-contractors up to the payment certificate

SUMMARY PAGE OF WORK DONE TO 30 JUNE 2011

CONTRACT NO : N.003-120-2008/6 CERTIFICATE NO 35

DETAILS	1 VALUE OF SCHEDULED WORK DONE	2 VALUE OF MATERIALS ON SITE	3 VALUE OF VO'S (CPA APPLICABLE)	4 VALUE OF UNSCHEDULED DAYWORKS (CPA APPLICABLE)	5 VALUE OF NON-ESCALING ITEMS NOT IN SCHEDULE	6 LESS: TOTAL AMOUNT OF REDUCED PAYMENTS	7 ADD: CONTRACT PRICE ADJUSTMENT	8 ADD/DEDUCT: TOTAL VALUE OF SPECIAL MATS VARIANCE	9 DEDUCT: RETENTION	10 DEDUCT: PENALTIES	11 TOTAL	12 DEDUCT: PREVIOUS TOTAL (EXCL 11 ON PREVIOUS CERT)	13 TOTAL THIS CERTIFICATE	14 ADD: VAT AT 14%	15 NETT AMOUNT NOW DUE FOR PAYMENT
FROM PAGE	3	4	5	6	8	9	11	12		13					
PROJECT NO.															
Superway	4 893 568.52	0.00	0.00	0.00	0.00	0.00	187 507.29	0.00	0.00	0.00	5 081 075.97	4 936 545.98	144 529.99	20 234.20	164 764.19
Tsela	8 003 892.62	0.00	0.00	0.00	0.00	0.00	421 099.29	0.00	0.00	0.00	8 424 991.62	8 063 356.51	361 635.31	50 628.94	412 264.25
Connemara	1 752 533.90	0.00	0.00	0.00	0.00	0.00	86 988.71	0.00	0.00	0.00	1 839 522.61	1 781 568.46	57 954.15	8 113.58	66 067.73
Modjadji	220 470.20	0.00	0.00	0.00	0.00	0.00	10 472.56	0.00	0.00	0.00	230 942.76	230 942.76	0.00	0.00	0.00
L & S Cleaning	437 216.29	0.00	0.00	0.00	0.00	0.00	34 765.25	0.00	0.00	0.00	471 981.54	375 191.42	96 790.16	13 550.63	110 340.78
TOTAL Superway	15 307 681.63	0.00	0.00	0.00	0.00	0.00	740 833.00	0.00	0.00	0.00	16 048 514.68	15 387 605.03	660 909.61	92 527.35	753 436.96
GRAND TOTAL	15 307 681.63	0.00	0.00	0.00	0.00	0.00	740 833.00	0.00	0.00	0.00	16 048 514.68	15 387 605.03	660 909.61	92 527.35	753 436.96

T | S, D, E | CPA | G | A_p | $A_c = A - A_p$

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Manage RMM Projects
Managing, Coordinating & Operating
Budget control

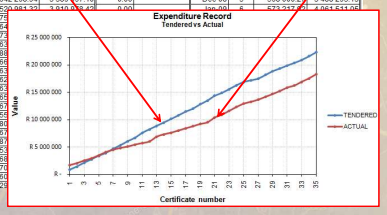
Expenditure projection record for a RRM project

EXPENDITURE PROJECTION RECORD

CONTRACT NO.:
CONTRACT PERIOD (months) 35

CERTIFICATE DETIALS		TENDERED MONTHLY	TENDERED CUMULATIVE	REVISED MONTHLY	REVISED CUMULATIVE	ACTUAL MONTH	CERT NO.	ACTUAL CERTIFICATE (INCL VAT)	ACTUAL CUMULATIVE
CERTIFICATE NO:	35	841 256.48	841 256.48	0.00		Aug-08	1	1 688 110.17	1 688 110.17
CERTIFICATE DATE:	30-Jun-11	590 026.70	1 431 283.18	0.00		Sep-08	2	370 709.13	2 058 819.30
CERTIFICATE PERIOD: From:	01-Jun-11	594 857.54	2 026 140.82	0.00		Oct-08	3	470 200.50	2 529 019.80
To:	30-Jun-11	621 587.34	2 647 728.16	0.00		Nov-08	4	391 273.08	2 920 292.88
		542 268.94	3 189 997.10	0.00		Dec-08	5	568 000.23	3 488 293.13
		529 083.33	3 719 080.43	0.00		Jan-09	6	573 557.67	4 061 511.08

BUDGET/EXPENDITURE DETAILS	
ORIGINAL TENDER SUM	**19 161 407.80**
REVISIONS	**0.00**
FINAL APPROVED TENDER SUM (FE)	**19 161 407.80**
CUM EXPENDITURE TO DATE (TS)	**18 286 306.66**
BALANCE FOR CONTRACT (FE-TS)	**875 101.14**
Year ending March 2009	**4 846 816.94**
Year ending March 2009	**4 846 816.94**
Year ending March 2010	**4 657 627.12**
Year ending March 2011	**6 721 006.75**
TOTAL PREVIOUS YEARS (A)	**16 225 450.81**
ESTIMATED EXP THIS FIN YEAR (FEY):	**1 560 000.00**
EXPEND TO DATE CURRENT YEAR (TSY):	
Year ending March 2012	**2 060 855.85**
BALANCE FOR THIS FIN YEAR (FEY-TSY)	**-500 855.85**



Manage RMM Projects
Managing, Coordinating & Operating
Budget control

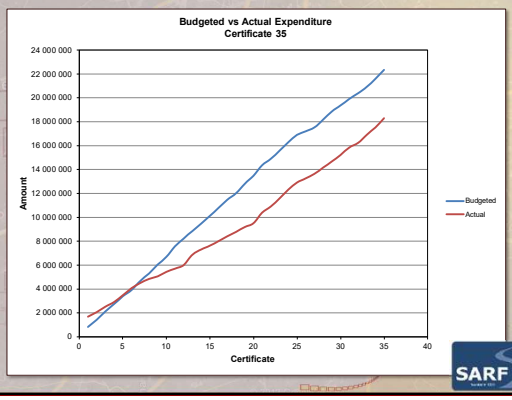
The ideal financial management system should be able to integrate the day to day data and summaries and records generated for the payment certificates.

This should be accessible in the form of reports or at least graphically.

Graphical representations should always compare two items, for example budget versus actual expenditure.

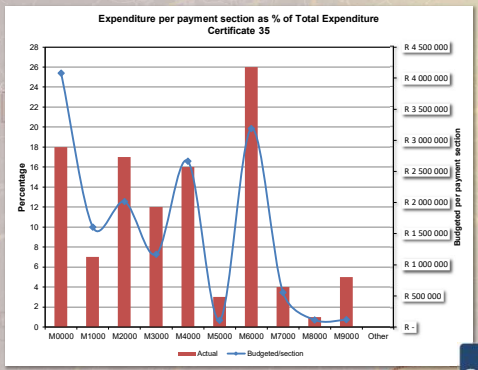
Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Budgeted vs Actual Expenditure



Manage RMM Projects
Managing, Coordinating & Operating
Budget control

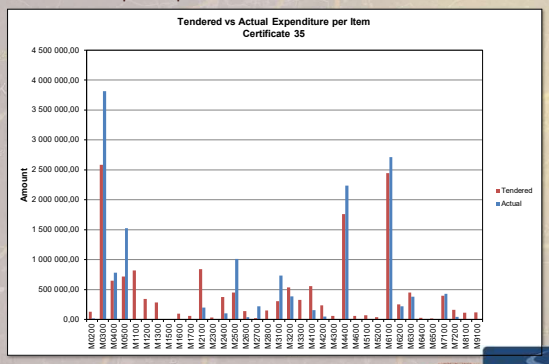
Expenditure per payment section as % of Total Expenditure



3.5 Budget control
3.5.1 Budget control
3.5.1.3 Reports and graphs

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Tendered vs Actual Expenditure per Item



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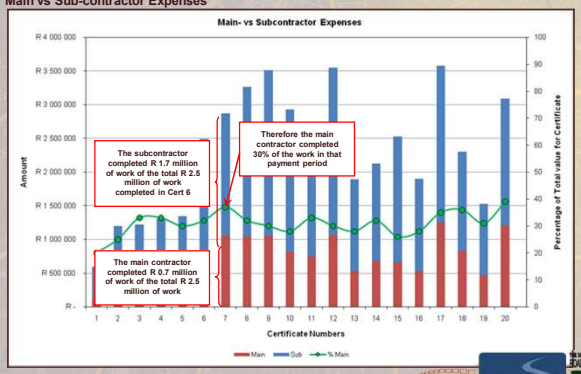
3.5 Budget control
3.5.1 Budget control
3.5.1.3 Reports and graphs

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Main vs Sub-contractor Expenses



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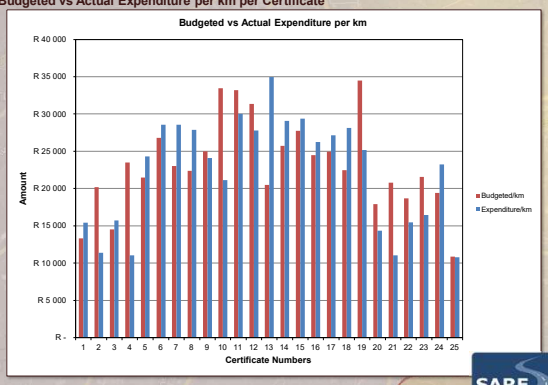
3.5 Budget control
3.5.1 Budget control
3.5.1.3 Reports and graphs

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

Budgeted vs Actual Expenditure per km per Certificate



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3.5 Budget control
3.5.2 Variation Orders (VOs)

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

A variation order is issued for:

<u>Additional</u> work for which there are rates in the Schedule of Quantities; or

There are no rates in the Schedule of Quantities; or

Amended or additional work executed as 'Day Work'.

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3.5 Budget control
3.5.2 Variation Orders (VOs)

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

A VO is required for the expenditure of provisional sums or additional work that is not covered under rates or day work schedules. Such a VO is for a specific purpose linked to a specific time-frame.

VOs must be approved by the client. VO will also indicate if the work will be done out of current budget provision or if additional funding is required.

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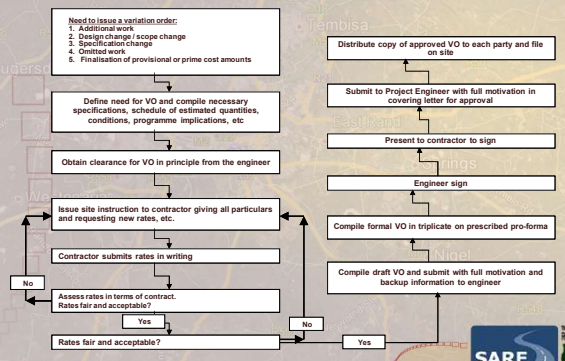
3.5 Budget control
3.5.2 Variation Orders (VOs)

Manage RMM Projects
Managing, Coordinating & Operating
Budget control

The flow diagram depicts the general actions required to issue a VO on a RRM contract.



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Manage RMM Projects

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