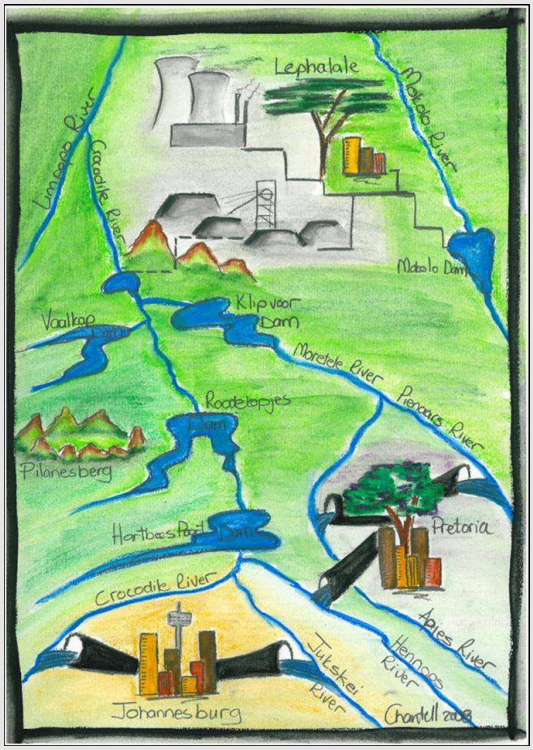
water affairs
Department:
Water Affairs
REPUBLIC OF SOUTH AFRICA

MOKOLO AND CROCODILE RIVER (WEST) WATER AUGMENTATION PROJECT (MCWAP)

De-bottlenecking of an Existing Pipeline



FINAL BASIC ASSESSMENT REPORT

December 2009

NEMAI CONSULTING

ENVIRONMENTAL AND SOCIAL CONSULTANTS

P.O. BOX 1673
SUNNINGHILL
2157

147 Bram Fischer Drive
FERNDALE
2194

Tel: 011 781 1730
Fax: 011 781 1731
Email: info@nemai.co.za

TITLE AND APPROVAL PAGE

Project name:	***Mokolo and Crocodile River (West) Water Augmentation Project (MCWAP) - De-bottlenecking***
Report Title:	***Final Basic Assessment Report – MCWAP De-bottlenecking of an Existing Pipeline***
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Aurecon

Approved for Project Coordinator by:

SC Vogel

Project Coordinator & Manager

DEPARTMENT WATER AFFAIRS (DWA)

*Approved for Chief Directorate: Integrated Water Resources Planning by**:***

OJS van den Berg

Chief Engineer: Options Analysis North

LS Mabuda

Director: Options Analysis

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LIST OF ACRONYMS

BID	Background Information Document
CTL	Coal to Liquid Fuel
DEA	Department of Environmental Affairs
DEDET	Department of Economic Development Environment and Tourism
DMR	Department of Mineral Resources
DWA	Department of Water Affairs
DWAF	Department of Water Affairs and Forestry
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ha	Hectare
I&AP	Interested and Affected Party
IPP	Independent Power Producer
km	Kilometre
kV	Kilovolt
l	Litres
l/s	Litres per second
m	Metre
m^3	Cubic metre
m^3/s	Cubic metre per second
mm	Millimetre
Mm^3	Million cubic metres
Mm^3/a	Million cubic metres per annum
MCWAP	Mokolo Crocodile (West) Water Augmentation Project
NAFU	National African Farmers' Union
NEMA	National Environmental Management Act (No. 107 of 1998)
PIP	Public Involvement Process
PSC	Project Steering Committee
SAHRA	South African Heritage Resources Agency
TAU	Transvaal Agricultural Union
TCTA	Trans-Caledon Tunnel Authority

(For official use only)

File Reference Number:						
Application Number:						
Date Received:						

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2006

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2006 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.

2. The report must be typed within the spaces provided in the form. The size of the spaces provided are not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.

3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.

4. An incomplete report may be returned to the applicant for revision.

5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.

6. This report must be handed in at offices of the relevant competent authority as determined by each authority.

7. No faxed or e-mailed reports will be accepted.

8. The report must be compiled by an independent environmental assessment practitioner.

9. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.

10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed. In addition, if it is clear to the EAP that because of the particular circumstances of the case it is not sensible to complete any of the sections indicated under paragraph 3 of this report, he or she may apply for exemption from completing that part of the report in the spaces provided in the report. It must however be noted that if the application for exemption is turned down, the report may have to be resubmitted.

SECTION A: APPLICATION FOR EXEMPTION

The relevant parts of this section must be completed if the environmental assessment practitioner (EAP) on behalf of the applicant whishes to apply for exemption from completing or complying with certain parts of this basic assessment report.

1. APPLICATION FOR EXEMPTION FROM ASSESSING ALTERNATIVES:

At least two alternatives (site or activity) should be assessed. If that is not possible, the applicant should apply for exemption from having to assess alternatives. Such exemption will, however, not apply to the no-go alternative that must be assessed in all cases.

Provide a detailed motivation for not considering alternatives including an explanation of the reason for the application for exemption (supporting documents, if any, should be attached to this report):

I declare that the above motivation is accurate and, hereby apply for exemption in terms of regulation 51 of the Environmental Impact Assessment Regulations, 2006, from having to assess alternatives in this application as required in section 24(4)(b) in the National Environmental Management Act, 1998 (Act No. 107 of 1998)

Signature of the EAP: _____ Date:

2. APPLICATION FOR EXEMPTION FROM COMPLYING WITH PARTS OF REGULATION 23(2) REGARDING THE CONTENT OF THIS BASIC ASSESSMENT REPORT:

Application for exemption from certain parts of regulation 23(2) regarding the completion of certain parts of this basic assessment report may be made by completing the relevant sections below.

Indicate the numbers of the sections of this report for which exemption is applied for:

Section B:	7(a)	7(b)	7(c)	7(d)	8	9	10(c)	10(e)	10(f)	10(g)	10(h)	10(j)	10(k)	12
Section C:	1	2	3	4	5	6								
Section D:	1(a)	1(b)	1(c)	1(d)	1(f)	1(g)	3							

Provide a detailed motivation including an explanation of the reason for the application for exemption (supporting documents, if any, should be attached to this report):

I declare that the above motivation is accurate and, hereby apply for exemption in terms of regulation 51 of the EIA Regulations, 2006, from having to complete the indicated sections of the Basic Assessment Report.

Signature of the EAP: _____ Date:

SECTION B: ACTIVITY INFORMATION

1 ACTIVITY DESCRIPTION

Describe the activity, which is being applied for in detail (A1):

BACKGROUND

Large parts of the Mokolo River catchment area are located on the Waterberg coalfields where, according to preliminary estimates, almost half of South Africa's in-situ coal reserves are situated. As such, the Waterberg has long been considered the country's major coal resource for the future, especially once the current mining areas in the Witbank-Highveld coalfields of the Mpumalanga province have been depleted. As a result, major developments are planned for the Lephalale area, which include:

- Construction of Eskom's Medupi Power Station (presently underway);
- Development of further Eskom power stations;
- Possible development of power stations by Independent Power Producers (IPPs);
- Extension of the Exxaro mining operations and further mines;
- Possible petrochemical industries to be developed around the coal field further west of Lephalale;
- Possible exploitation of gas; and
- Accelerated growth in the population in the area.

As a direct result of the above developments, the demand for water in the Lephalale area will significantly increase over the next 20 years.

The Mokolo Dam (formerly known as the Hans Strijdom Dam) was constructed in the late 1970s and completed in July 1980, to supply water to Matimba Power Station, Grootegeluk Mine, Lephalale (Ellisras) Municipality and for irrigation downstream of the dam. Based on the water infrastructure, the current water availability and water use allows only limited spare yield existing for future allocations for the anticipated surge in economic development in the area.

WATER REQUIREMENTS

A water demand curve was produced using demand projects provided by the large users (i.e. Eskom, Exxaro and Sasol). The projected water requirements for the Municipality were derived using existing households in Lephalale, known number of households per mine/plant/power station (provided by large users) and using unit consumption rates. Demand forecasts for the interim period (up to end 2014) were adjusted to match the demand with water available in the Mokolo Dam. Projects that were considered during the preparation of the demand curve, which are referred to as scenario 9, are tabulated below. This scenario could possibly change in the future, depending on the requirements of the end users. This emphasises the dynamic nature of the planning component of MCWAP. The annual water demand for the abovementioned projects are shown in **Figure 1**.

Table 1: Development scenario projects used to determine water requirements

No.	Proponent	Details
1	Eskom	Matimba, Medupi + 4 coal power stations
2	Independent Power Producers (IPPs)	Equivalent of 1 Eskom power station
3	Exxaro	Matimba coal supply + further projects
4	Coal mining	Allowance for 4 additional coal mines each supplying a power station
5	Sasol	Mafutha 1 Coal to Liquid Fuel (CTL) plant and associated coal mine
6	Municipality	Estimate based on projected growth in households for construction and permanent workforce

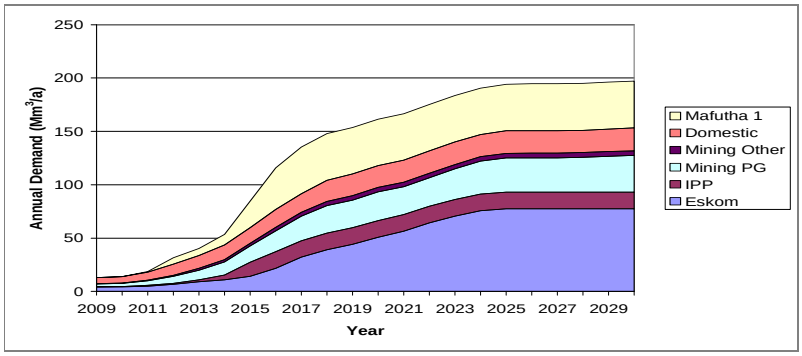


Figure 1: Demand Projection per User (Scenario 9, March 2009)

MEETING THE INCREASED WATER DEMANDS

Due to the limited availability of water in the Lephalale area, the Department of Water Affairs (DWA) commissioned a feasibility study of the Mokolo Crocodile (West) Water Augmentation Project (MCWAP) to establish how the future water demands could be met. The phases for the proposed infrastructure for transferring water from the Mokolo Dam and Crocodile River (West) are tabulated below (refer to **Figure 2**).

Table 2: MCWAP Components

Component	Brief Overview
Phase 1	A pipeline parallel to the existing pipeline, to augment the supply from Mokolo Dam. This is to supply in the growing water requirement and also to supply more water for the interim period until a transfer pipeline from the Crocodile River (West) can be implemented. The system will utilise the available yield from Mokolo Dam. Phase 1 consists of the following: • Rising main from Mokolo Dam to Wolvenfontein balancing dams; • Gravity line from Wolvenfontein to Matimba Power Station; and • Gravity line from Matimba Power Station to Steenbokpan.
Phase 2	Transfer scheme from the Crocodile River (West) at Vlieëpoort near Thabazimbi to the Lephalale area via a system consisting of: • A weir and abstraction infrastructure, including a balancing reservoir, desilting works, and a high lift pumpstation at Vlieëpoort (near Thabazimbi); • Transfer system (approximately 100 km): consisting of three potential pipeline routes for the rising main pipeline, with the preferred route running primarily parallel to the railway line; • A Break Pressure Reservoir; • An Operational Reservoir; and a • Delivery system, consisting of a gravity pipeline (approximately 30km) running from the Operational Reservoir to the Steenbokpan area, connecting to the Phase 1 works.
De-bottlenecking	De-bottlenecking of the existing pipeline that stretches from Mokolo Dam to Lephalale, which belongs to Exxaro. This entails the construction of the first 9km of the proposed gravity pipeline (for Phase 1) from Wolvenfontein balancing dams, with interconnections to the existing pipeline. The intention of the de-bottlenecking is to improve the hydraulic gradient at Rietspruitnek, where the existing pipeline passes over a high point.

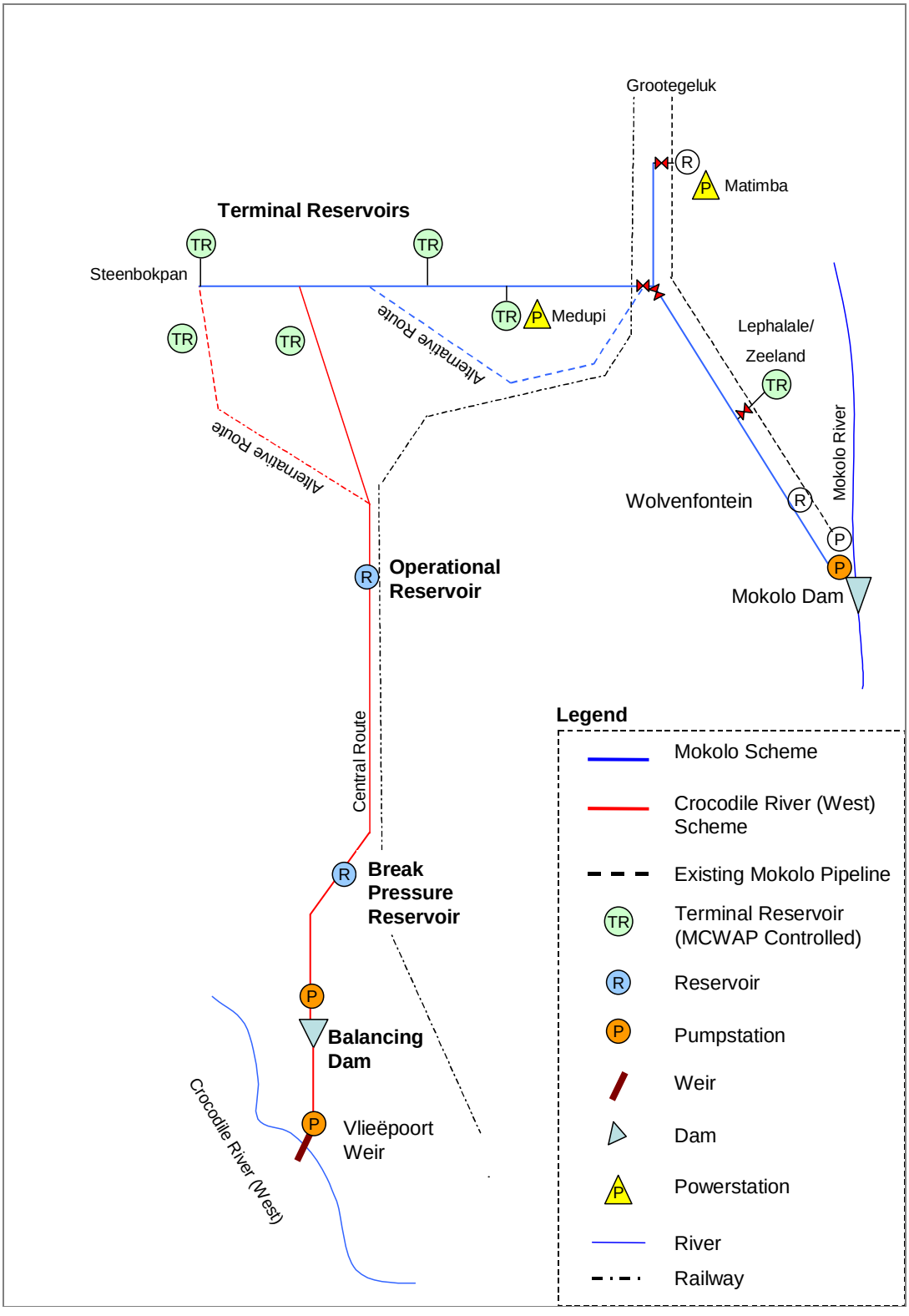


Figure 2: **MCWAP schematic layout**

The resultant increase in capacity of MCWAP is illustrated in **Figures 3** and **4**.

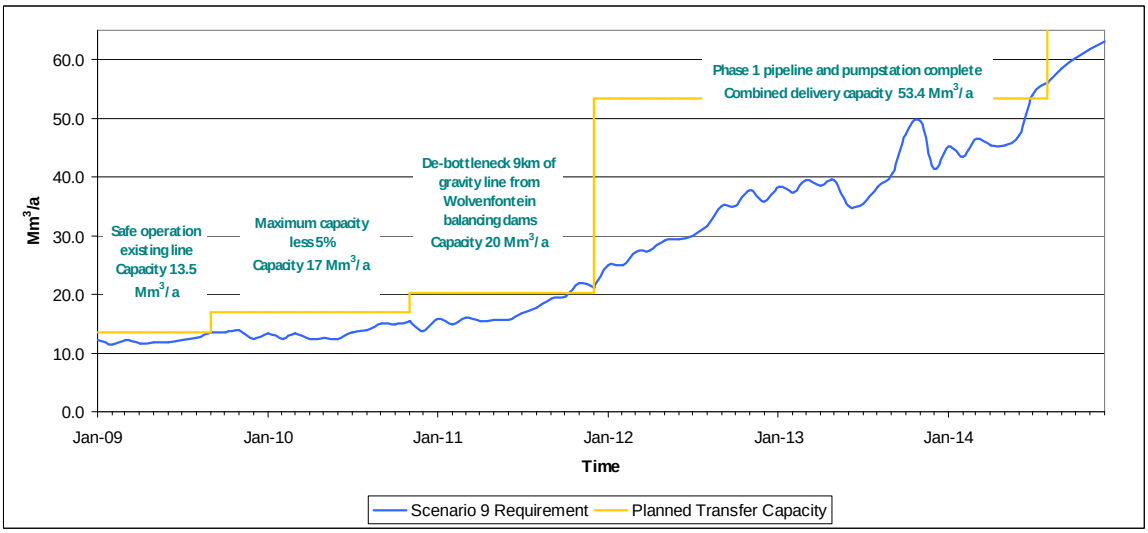


Figure 3: **Projected Monthly Water requirement for Interim Period (Scenario 9)**

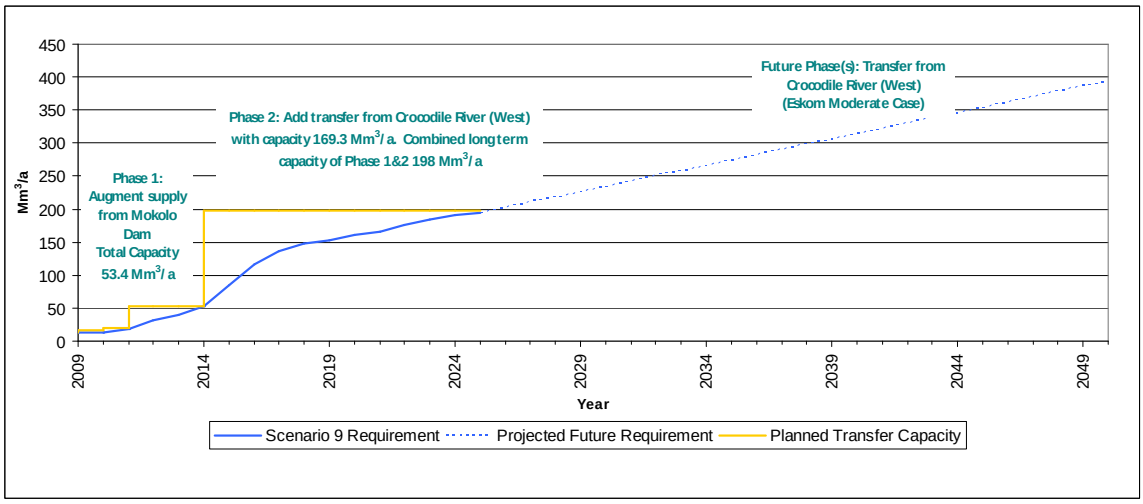


Figure 4: **Projected Annual Water Requirement and Planned Transfer Capacity (Scenario 9)**

MCWAP ENVIRONMENTAL ASSESSMENTS

Following pre-consultation with the Department of Environmental Affairs (DEA) (meetings held on 09 January 2009 and 03 March 2009), it was decided to submit a Class Application for the three MCWAP sub-projects (provided in **Table 1**), where separate environmental assessments are being undertaken for each MCWAP component, as shown in **Table 3** below.

Table 3: MCWAP Environmental Assessments

MCWAP Component	Environmental Assessment Process	DEA Reference No.
Phase 1	Scoping and EIA	12/12/20/1465
Phase 2	Scoping and EIA	12/12/20/1466
De-bottlenecking	Basic Assessment	12/12/20/1467

DE-BOTTLENECKING – PROJECT DESCRIPTION

This document serves as the final Basic Assessment Report for the MCWAP De-bottlenecking component. The project entails the de-bottlenecking of the existing pipeline that stretches from Mokolo Dam to Lephalale. The intention of the de-bottlenecking is to improve the hydraulic gradient at Rietspruitnek (see **Figure 5**), where the existing pipeline passes over a ridge (approximately 16.5km from the Wolvenfontein Balancing Dams).

Figure 5: North-westerly view of Rietspruitnek

De-bottlenecking is to be achieved through the construction of the first 9km of the proposed gravity pipeline (for MCWAP Phase 1), with a diameter of up to 1 100mm, from Wolvenfontein Balancing Dams, with interconnections to the existing pipeline (refer to maps contained in ***Appendix A***). By utilising the existing pump station at Mokolo Dam, water could then be delivered at a rate higher than the capacity of the existing pipeline. The capacity will increase from 0,51 m^3/s to 0,61 m^3/s.

The following facilities and structures normally associated with pipelines will be installed en-route:

- Air valves;
- Scour valves;
- Pipe access points;
- Road crossings;
- River crossings;
- A Cathodic protection system;
- AC mitigation;
- Protective measures required to curb surge in a pipeline such as, reflux valves, surge tank(s); and
- Farmers off takes.

The pipeline route (as shown in ***Appendix A4***) will travel alongside the existing pipeline. From Wolvenfontein Balancing Dams, the route crosses over the Farm Wolvenfontein 645LQ for ± 1,7km. It follows the existing access road over the Farm Toulon 643LQ for ± 1,8km, where it turns away more sharply to the north as it crosses a tributary of the Rietspruit. The route runs for ± 3,2km on the Farm Sterkfontein 642LQ, where it crosses the main stem of the Rietspruit. At the boundary of the Farm Nooitverwacht 635LQ, the route turns northwards and travels alongside the R510 for ± 2,3km.

The pipeline specifications are contained in **Table 4** below.

Table 4: Pipeline Specifications

Pipe diameter	Up to 1 100 mm
Pipe material	Steel pipes with Sintakote external coating and epoxy internal lining. Joints will be welded.
Installation	• Underground, with a minimum cover above the pipe of 1,0m. • Access/valve chambers will be located at approximately 500m intervals along the route. It will be concrete structures protruding slightly above natural ground level.
Temporary Construction Servitude Width	• Up to 22m. • Access will be provided over the pipe trench for game and vehicle movement.
Permanent Servitude Width	• Up to 20m. • Permanent access to the pipeline servitude will be required after construction. • Pipeline markers (concrete posts) will be installed at changes in direction and at regular intervals along the route • Farming activities (stock and crop farming) can continue within the servitude area after construction, taking cognisance of the need for permanent access to the pipeline servitude.

The methodology for the installation of the pipeline is as follows:

- Pegging of route.
- Marking of protected trees Mark
- Remove topsoil in construction area and stockpile separately for later re-instatement;
- Excavate pipe trench;
- Install and compact pipe bedding;
- Install pipe sections by means of side booms (special cranes) and weld joints;
- Repair field joints and backfill and compact pipe trench in layers;
- Construct valve and access chambers;
- Re-shape the impacted area to its original topography and replace stripped topsoil;
- Install final Cathodic Protection measures; and
- Install pipeline markers.

Figure 6: Typical trench excavation and pipe installation activities

Watercourse crossings at the Rietspruit and its tributary will consist of pipe sections encased in concrete in accordance with the relevant DWA criteria. The typical construction methodology for a river crossing is as follows:

- An earthen berm (coffer dam) and temporary bypass canal is constructed to divert the water around the construction site.
- The trench is excavated across the dry river channel.
- A concrete bedding is constructed first, followed by the installation and restraining of the pipe to prevent flotation. Encasement is completed by the construction of further concrete lifts.
- Once the concrete has set, the coffer dam is removed and the bypass canal is backfilled to re-instate flow.
- The impacted area is re-shaped to its original topography.
- The disturbed area is rehabilitated.
- If erosion of the disturbed river banks is a concern, gabion cut-off walls will be installed on either side.

Figure 7: Typical river crossing showing concrete encased pipe section

2 ALTERNATIVES

Describe alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

2(a) Site alternatives:

Describe site alternative 1 (S1), for the activity described above, or for any other activity alternative:

9km section of MCWAP Phase 1 pipeline from Wolvenfontein Balancing Dams.

The intention of this project is to achieve the de-bottlenecking of an existing pipeline (owned by Exxaro) that follows a fixed route. The proposed route not only follows the existing pipeline, but also stays alongside secondary and main (i.e. R510) roads and the existing maintenance road of the existing pipeline. This serves to minimise environmental impacts by following areas that are less sensitive due to the presence of existing linear infrastructure.

The following possible alternatives were considered during pre-feasibility stage:

- Removing the pipeline section at Rietspruitnek and following the R510 road around the ridge before linking up with the existing pipeline route; and
- MCWAP Phase 1 pipeline to cross Rietspruitnek by tunneling underneath the ridge.

However, the abovementioned options were not deemed to be feasible, and alignment alternatives were not thus considered.

Describe site alternative 2 (S2), if any, for the activity described above, or for any other activity alternative:

Build new pump station at Wolvenfontein Balancing Dams, on the Farm Wolvenfontein 645LQ

Describe site alternative 3 (S3), if any, for the activity described above, or for any other activity alternative:

(2)(b) Activity alternatives:

Describe activity alternative 2 (A1), if any, for any or all of the site alternatives as appropriate:

Describe activity alternative 3 (A2), if any, for any or all of the site alternatives as appropriate:

Describe activity alternative 2 (A3), if any, for any or all of the site alternatives as appropriate:

3 ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Alternative:

	Latitude (S):		**Longitude (E):**	
	°	‘	°	‘
Alternative S1[1] (preferred or only site alternative)	23°	57.974‘	27°	40.875‘
Alternative S2 (if any)	°	‘	°	‘
Alternative S3 (if any)				

In the case of linear activities:

Alternative:

	Latitude (S):		**Longitude (E):**	
Alternative S1 (preferred or only route alternative)				
• Starting point of the activity	23°	58.082‘	27°	40.791‘
• Middle point of the activity	23°	56.791‘	27°	38.470‘
• End point of the activity	23°	54.695‘	27°	37.720‘
Alternative S2 (if any)				
• Starting point of the activity	°	‘	°	‘
• Middle point of the activity	°	‘	°	‘

[1] “Alternative S..” refer to site alternatives.

- End point of the activity

Alternative S3 (if any)
- Starting point of the activity
- Middle point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

Comment:
Refer to table containing coordinates at 250m intervals for Alternative S1 contained in ***Appendix G****.*

4 PHYSICAL SIZE OF THE ACTIVITY

Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:	**Size of the activity:**
Alternative A1[2] (preferred activity alternative)	
Alternative A2 (if any)	
Alternative A3 (if any)	

or, for linear activities:

Alternative:	**Length of the activity:**
Alternative A1 (preferred activity alternative)	± 9 000m
Alternative A2 (if any)	
Alternative A3 (if any)	

Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	± 198 000m^2
Alternative A2 (if any)	
Alternative A3 (if any)	

5 SITE ACCESS

Does ready access to the site exist, or is access directly from an existing road?	YES
If NO, what is the distance over which a new access road will be built	
Describe the type of access road planned:	

The pipeline route is aligned alongside the following existing roads (see **Figure 8**):
- Maintenance road for existing pipeline within servitude (not shown in map below);
- ± 3km of gravel road from Wolvenfontein balancing dams; and
- ± 2,3km of R510 Road.

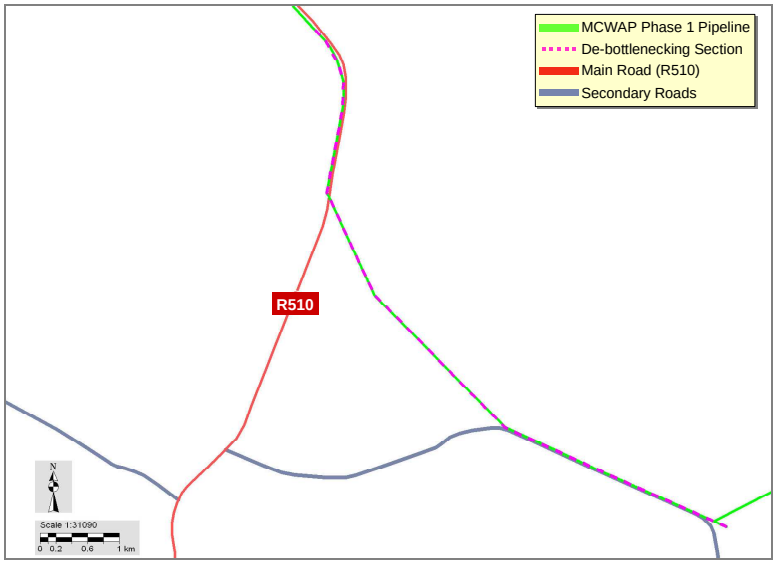


Figure 8: Major roads in immediate project area

Include the position of the access road on the site plan.

[2] "Alternative A.." refer to activity, process, technology or other alternatives.

6 WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

6(a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase? YES

If yes, what estimated quantity will be produced per month? ± 13 500m^3

How will the construction solid waste be disposed of (describe)?

General waste to be collected at the construction camp and on site through bulk containers (skips) and bins, and to be transported for disposal at the municipal landfill (i.e. Groothoek waste disposal site) or other permitted site.

Spoil material (i.e. excess soil and rock) to be used as backfill for borrow pits and other diggings in area, or to be disposed of at suitable disposal sites.

Mitigation measures for waste management included in the Environmental Management Plan (EMP).

Where will the construction solid waste be disposed of (describe)?

Groothoek waste disposal site or other permitted site.

Will the activity produce solid waste during its operational phase? NO

If yes, what estimated quantity will be produced per month?

How will the solid waste be disposed of (describe)?

Where will the solid waste be disposed if it does not feed into a municipal waste stream (describe)?

Spoil material (i.e. excess soil and rock) to be used as backfill for borrow pits and other diggings in area, or to be disposed of at suitable disposal sites.

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, the application should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation? YES

Comment:
Hazardous waste generated during construction will include substances such as paint and fuel. However, the waste quantities should be relatively small and potential impacts will be managed by environmental best practices contained in the EMP. Hazardous waste will be disposed off at a permitted waste disposal site.

If yes, inform the competent authority and request a change to an application for scoping and EIA.

Is the activity that is being applied for a solid waste handling or treatment facility? NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Describe the measures, if any, that will be taken to ensure the optimal reuse or recycling of materials:

Comment:
As far as possible, hazardous waste will be retained for reuse by the supplier.

Has a specialist been consulted to assist with the completion of this section? NO

If YES, please complete:

Name of the specialist:

Qualification(s) of the specialist:

Postal address:

Postal code:

Telephone: Cell:

E-mail: Fax:

Are any further specialist studies recommended by the specialist?

If YES, specify:

If YES, is such a report(s) attached?

Signature of specialist: Date:

6(b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system? NO

If yes, what estimated quantity will be produced per month?

Will the activity produce any effluent that will be treated and/or disposed of on site? NO

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

Will the activity produce effluent that will be treated and/or disposed of at another facility? NO

If yes, provide the particulars of the facility:

Facility name:

Contact person:

Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

Has a specialist been consulted to assist with the completion of this section?		NO

If YES, please complete:

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: Date:

6(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

Comment:
Air quality management and dust control governed by National Environmental Management Air Quality Act (No. 39 of 2004). However, no formal authorisation required under the aforementioned legislation for the activities associated with this project.

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If no, describe the emissions in terms of type and concentration:

During the construction phase, potential sources of air pollution could include:

- Dust from the use of dirt roads;
- Dust from bare areas that have been cleared for construction purposes;
- Fugitive dust from trucks transporting spoil and fill material;
- Emissions from construction equipment and machinery; and
- Tailpipe emissions from construction vehicles.

Air pollution could possibly be caused by the following sources during the operation phase:

- Dust from the use of dirt roads;
- Tailpipe emissions from maintenance vehicles; and
- Dust from areas that were not rehabilitated.

Mitigation measures for air quality management included in the EMP.

Has a specialist been consulted to assist with the completion of this section?		NO

If YES, please complete:

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: Date:

6(d) Generation of noise

Will the activity generate noise?	YES	
If yes, is it controlled by any legislation of any sphere of government?		NO

Comment:
Noise governed by inter alia National Environmental Management Air Quality Act (No. 39 of 2004). However, no formal authorisation required under the aforementioned legislation for the activities

associated with this project.

If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If no, describe the noise in terms of type and level:

Sources of noise during the construction phase include (a) blasting; (b) use of construction equipment, machinery and vehicles; and (c) activities at the construction camp.

Mitigation measures for noise management included in the EMP.

Has a specialist been consulted to assist with the completion of this section? NO
If YES, please complete:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: Date:

7 WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es)

municipal	water board	groundwater	river, stream, dam or lake	Other √	the activity will not use water

Comment:
Water for construction purposes will be obtained from the existing pipeline, by creating take-off point(s). Water tanks will also be used to convey water to the site.

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:
Does the activity require a water use permit from the Department of Water Affairs and Forestry? NO
If yes, please submit the necessary application to the Department of Water Affairs and Forestry and attach proof thereof to this application if it has been submitted.

Comment:
Authorisation of water use, in terms of Section 21 of the National Water Act (No. 36 of 1998), is not required for MCWAP as DWA cannot simultaneously fulfill the roles of project proponent and authorising agent. Nonetheless, the principles of this Act need to be adhered to.

8 ENERGY EFFICIENCY

Describe the design measures, if any, that have been taken to ensure that the activity is energy efficient:
The de-bottlenecking aims to achieve the optimal use of the existing pipeline and pumpstation.
Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:
No alternative energy sources have been considered.

9 SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this document. The site or route plans must indicate the following:

9(a) The scale of the plan which must be at least a scale of 1:500;
9(b) the property boundaries and numbers of all the properties within 50m of the site;
9(c) the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
9(d) the exact position of each element of the application as well as any other structures on the site;
9(e) the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
9(f) all trees and shrubs taller than 1.8m;
9(g) walls and fencing including details of the height and construction material;
9(h) servitudes indicating the purpose of the servitude;
9(i) sensitive environmental elements within 100m of the site or sites including (but not limited thereto):

- rivers;
- the 1:100 year flood line (where available or where it is required by DWAF);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or invested with alien species);

9(j) for gentle slopes the 1m contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and

9(k) the positions from where photographs of the site were taken.

10 SITE PHOTOGRAPHS

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under Appendix B to this form**.** It should be supplemented with additional photographs of relevant features on the site, if applicable.

11 FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

Comment:
A facility illustration in the form of a typical pump station for the activity alternative A3 (i.e. new pump station at Wolvenfontein Balancing Dams) is provided in Appendix C.

12 ACTIVITY MOTIVATION

12(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	± R129 mil
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown

Comment:
The de-bottlenecking intends to improve the utilization of existing infrastructure, in order to provide additional water for development in the Lephalale region. The intention is to ultimately manage the infrastructure under the overall MCWAP scheme.

The Economic Study, which is being undertaken for the EIA for Phase 1, will investigate inter alia the expected yearly income to be generated.

Will the activity contribute to service infrastructure or is it a public amenity?	YES
How many new employment opportunities will be created in the development phase of the activity?	Unknown
What is the expected value of the employment opportunities during the development phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown
What is the expected current value of the employment opportunities during the first 10 years?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	Unknown

Comment:
Should environmental authorisation be granted for MCWAP Phase 1, the intention is to build the de-bottlenecking section as part of the overall Phase 1 construction phase and to manage the infrastructure under the overall MCWAP scheme. The Economic Study, which is being undertaken for the EIA for Phase 1, will investigate inter alia the potential employment opportunities to be created during the construction and operational phases of the MCWAP project.

Through a procurement policy, Contractor(s) will be encouraged to use local labour and to meet minimum BEE requirements.

12(b) Need and desirability of the activity

Motivate and explain the need and desirability of the activity (including demand for the activity):

Major developments are planned for the Lephalale area as a result of the extensive Waterberg coalfields. As a direct result of these developments, the demand for water in the Lephalale area will significantly increase over the next 20 years.

This project entails the de-bottlenecking of the existing pipeline that stretches from Mokolo Dam to Lephalale. The intention of the de-bottlenecking is to improve the hydraulic gradient at Rietspruitnek, where the existing pipeline passes over a high point (i.e. ridge).

Through the de-bottlenecking exercise water could be delivered at a rate higher than the capacity of the existing pipeline. The capacity will increase from 0.51 m^3/second to 0.61 m^3/second.

Indicate any benefits that the activity will have for society in general:

Ultimately, MCWAP will provide water for developments that are of national strategic importance, such as the Medupi Power Station (presently underway) and future power stations by Eskom and Independent Power Producers in the region, as well as petrochemical industries. Consequential developments (e.g. coal mining operations and residential development) will contribute substantially to the regional economy.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

Water take-off points for domestic and stock-watering purposes from the new pipeline will be considered following the necessary negotiations with interested landowners. The potential exists for the reinstatement and rehabilitation of the area affected by previous installation of existing pipeline.

13 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of the Republic of South Africa (No. 108 of 1996)	Parliament	18 December 1996
Environment Conservation Act (No. 73 of 1989):	• National - Department of Environmental Affairs (DEA); • Provincial - Limpopo Department of Economic Development, Environment and Tourism (DEDET)	09 June 1989
National Environmental Management Act (No. 107 of 1998)	• DEA • DEDET	27 November 1998
National Water Act (No. 36 of 1998)	DWA	26 August 1998
National Environmental Management Air Quality Act (No. 39 of 2004)	DEA	24 February 2005
National Environmental Management: Biodiversity Act, 2004 (No. 10 of 2004)	DEA	07 June 2004
National Environmental Management: Protected Areas Act (No. 57 of 2003)	DEA	11 February 2005
Minerals and Petroleum Resources Development Act (No. 28 of 2002)	Department of Mineral Resources (DMR)	10 October 2002
Occupational Health & Safety Act (No. 85 of 1993) and relevant Regulations	Department of Labour	23 June 1993
National Heritage Resources Act (No. 25 of 1999)	South African Heritage Resources Agency (SAHRA)	28 April 1999
Conservation of Agricultural Resources Act (No. 43 of 1983)	Department of Agriculture	21 April 1983
National Forests Act (No. 84 of 1998)	Department of Agriculture, Forestry and Fisheries	30 October 1998
Limpopo Environmental Management Act (No. 7 of 2003)	DEDET	01 May 2004
Government Notice No. R. 385 and R. 386	• DEA • DEDET	21 April 2006

SECTION C: SITE/AREA DESCRIPTION

Important note: For linear activities (pipelines etc) as well as activities that cover very large sites, it may be necessary to complete Section C for each part of the site that has a significantly different environment. In such cases please complete copies of Section C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C Copy No. (e.g. A): **A**
(complete only when appropriate)

Comment:
The surrounding area alongside the pipeline route was regarded as homogenous, with game farming as the dominant land use encountered.

1 GRADIENT OF THE SITE

Indicate the general gradient of the sites.

Alternative S1:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
	√					

Alternative S2:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
	√					

Alternative S3:

2 LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site.

Alternative S1:

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
					√	√		

Alternative S2:

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea-front
					√			

Alternative S3:

3 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following (tick the appropriate boxes)?

	Alternative S1:		Alternative S2:		Alternative S3:	
Shallow water table (less than 1.5m deep)		NO		NO		
Dolomite, sinkhole or doline areas		NO		NO		
Seasonally wet soils (often close to water bodies)	YES			NO		
Unstable rocky slopes or steep slopes with loose soil		NO		NO		
Dispersive soils (soils that dissolve in water)		NO		NO		
Soils with high clay content (clay fraction more than 40%)		NO		NO		
Any other unstable soil or geological feature		NO		NO		
An area sensitive to erosion		NO		NO		

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. (Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted).

Has a specialist been consulted to assist with the completion of this section? YES

If YES, please complete:

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: _____ Date:

4 GROUNDCOVER

Tick the types of groundcover present on the site.
Alternative S1:

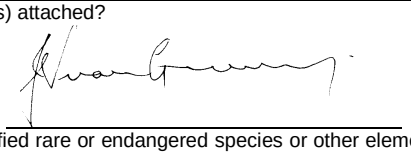
Natural veld - good condition[E] √	Natural veld with scattered aliens[E] √	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens
Sport field	Cultivated land √	Paved surface	Building or other structure	Bare soil √

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.
Has a specialist been consulted? YES

Comment:
The following ecological specialist studies were undertaken:
- *Fauna and Flora Assessment along the MCWAP Phase 1 route, which included the preferred route for the de-bottlenecking section – contained in* ***Appendix D1****;*
- *Wetland assessment – contained in* ***Appendix D3****.*

If YES, please complete the following:

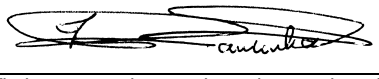
Name of the specialist:	Dr. J.V. Van Greuning		
Qualification(s) of the specialist:	Pri. Sci. Nat: D.Sc - Botany		
Postal address:	PO Box 886 Irene		
Postal code:	0062		
Telephone:	012-345 4891	Cell:	072 508 4056
E-mail:	vanessam@lantic.net	Fax:	086 675 6136
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?			NO
If YES, specify and explain:	Most of the areas adjacent to the existing pipeline reserve are primary natural vegetation; consequently ample connectivity with natural vegetation exists. Protected trees are spread throughout the study site		
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?	YES		
If YES, specify and explain:	Protected trees occurring in the study area are *Acacia erioloba, Boscia albitrunca, Combretum imberbe* and *Sclerocarya birrea* subsp. *africana.*		
Are any further specialist studies recommended by the specialist?			NO
If YES, specify:			
If YES, is such a report(s) attached?			NO

Signature of specialist:  Date: 22/10/2009

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Name of the specialist:	Dr. I.L. Rautenbach		
Qualification(s) of the specialist:	Pri. Sci. Nat: Ph. D - Mammology		
Postal address:	PO Box 886 Irene		
Postal code:	0062		
Telephone:	012-345 4891	Cell:	082 335 1288
E-mail:	vanessam@lantic.net	Fax:	086 675 6136

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?		NO
If YES, specify and explain:	Most of the areas adjacent to the existing pipeline reserve are game farms with some endangered mammals, but they will not be impacted if fenced off from the proposed development.	
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?		NO
If YES, specify and explain:		
Are any further specialist studies recommended by the specialist?		NO
If YES, specify:		
If YES, is such a report(s) attached?		NO

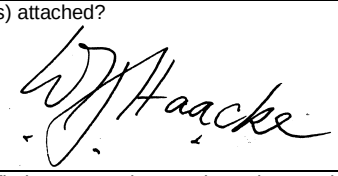
Signature of specialist: 

Date: 22/10/2009

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Name of the specialist:	Mr W.D. Haacke		
Qualification(s) of the specialist:	Pri. Sci. Nat: M.Sc - Herpetology		
Postal address:	PO Box 886 Irene		
Postal code:	0062		
Telephone:	012-345 4891	Cell:	083 619 0866
E-mail:	vanessam@lantic.net	Fax:	086 675 6136

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?		NO
If YES, specify and explain:	Most of the areas adjacent to the existing pipeline reserve are game farms with some endangered reptiles, but they will not be impacted if mitigation measures proposed are followed.	
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?		NO
If YES, specify and explain:		
Are any further specialist studies recommended by the specialist?		NO
If YES, specify:		
If YES, is such a report(s) attached?		NO

Signature of specialist: 

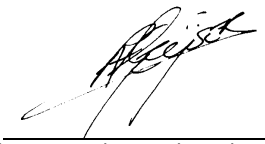
Date: 22/10/2009

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Name of the specialist:	Mr R.F. Geyser		
Qualification(s) of the specialist:			
Postal address:	PO Box 886 Irene		
Postal code:	0062		
Telephone:	012-345 4891	Cell:	082 440 7230
E-mail:	vanessam@lantic.net	Fax:	086 675 6136

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?	YES	
If YES, specify and explain:	Three Red Data bird species will be impacted directly by the availability of water downstream from the Mokolo River pumpstation. These species are the Half-collared Kingfisher, African Finfoot, White-backed Night-Heron. The habitat in the Mokolo River and Rietspruit are ideal for these species. The pipeline will only have a negative impact during the construction phase of the proposed development through the wooded areas, where after the birds will return to the area if rehabilitation are carried out correctly.	
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?	YES	
If YES, specify and explain:	Crossings of the Mokolo River and Rietspruit.	
Are any further specialist studies recommended by the specialist?		NO

If YES, specify:	
If YES, is such a report(s) attached?	NO

Signature of specialist:  Date: 22/10/2009

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Name of the specialist:	Mr. M. Ross		
Qualification(s) of the specialist:	MSC (AQUATIC HEALTH); Pr Sci Nat (Ecological) 400061/09		
Postal address:	PO Box 369, Wendywood		
Postal code:	2144		
Telephone:	011 467 2931	Cell:	082 293 5752
E-mail:	mathew@enviross.co.za	Fax:	086 675 6136

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?		NO
If YES, specify and explain:		
Are their any special or sensitive habitats or other natural features present on any of the alternative sites?	YES	
If YES, specify and explain:	Wetlands and river crossings	
Are any further specialist studies recommended by the specialist?		NO
If YES, specify:		
If YES, is such a report(s) attached?		

Signature of specialist:  Date: 26 Oct 2009

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Alternative S2:

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	Natural veld with heavy alien infestation[E]	Veld dominated by alien species[E]	Gardens √
Sport field	Cultivated land	Paved surface √	Building or other structure √	Bare soil √

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

Has a specialist been consulted?			NO
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?		
If YES, specify and explain:		
Are their any special or sensitive habitats or other natural features present on any of the alternative sites?		
If YES, specify and explain:		
Are any further specialist studies recommended by the specialist?		
If YES, specify:		
If YES, is such a report(s) attached?		

Signature of specialist: _____ Date:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Alternative S3:

If any of the boxes marked with an "[E] "is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn't have the necessary expertise.

Has a specialist been consulted?			
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?			
If YES, specify and explain:			
Are their any special or sensitive habitats or other natural features present on any of the alternative sites?			
If YES, specify and explain:			
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: _____ Date:

The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

5 LAND USE CHARACTER OF SURROUNDING AREA

Black out land uses and/or prominent features that does not currently occur within a 500m radius of the site

Alternative S1:

Natural area	Low density residential	Medium density residential	High density residential	Informal residential[A]
Retail	Commercial & warehousing	Light industrial	Medium industrial[AN]	Heavy industrial[AN]
Power station[A]	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam[A]	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical center	School	Tertiary education facility	Church	Old age home
Sewage treatment plant[A]	Train station or shunting yard[N]	Railway line[N]	Major road (4 lanes or more)[N]	Airport[N]
Harbour	Sport facilities	Golf course	Polo fields	Filling station[H]
Landfill or waste treatment site[A]	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archeological site
Other land uses (describe):	Private Game Reserves			

If any of the boxes marked with an "[N] "are ticked, please consult an appropriate noise specialist to assist in the completion of this section.

Has a specialist been consulted?			NO
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Will the ambient noise level have a negative impact on the proposed activity?		YES	NO
If YES, specify and explain:			
Are any further specialist or studies recommended by the specialist?		YES	NO
If YES, specify:			
If YES, is such a report(s) attached?		YES	NO

Signature of specialist: _____ Date:

If any of the boxes marked with an "A" are ticked, please consult an appropriate air quality specialist to assist in the completion of this section.

Has a specialist been consulted?		NO	
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Will the ambient air pollution level have a negative impact on the proposed activity?			
If YES, specify and explain:			
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: _____ Date:

If any of the boxes marked with an "H" are ticked, please consult an appropriate health assessment specialist to assist in the completion of this section.

Has a specialist been consulted?		NO	
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	
Will the surrounding land use pose any unacceptable health risk on the proposed activity?			
If YES, specify and explain:			
Are any further specialist studies recommended by the specialist?			
If YES, specify:			
If YES, is such a report(s) attached?			

Signature of specialist: _____ Date:

Alternative S2:

Natural area	Low density residential	Medium density residential	High density residential	Informal residential[A]
Retail	Commercial & warehousing	Light industrial	Medium industrial[AN]	Heavy industrial[AN]
Power station[A]	Office/consulting room	Military or police base/station/compound	Casino/entertainment complex	Hospitality facility
Open cast mine	Underground mine	Spoil heap or slimes dam[A]	Quarry, sand or borrow pit	Dam or reservoir
Hospital/medical center	School	Tertiary education facility	Church	Old age home
Sewage treatment plant[A]	Train station or shunting yard[N]	Railway line[N]	Major road (4 lanes or more)[N]	Airport[N]
Harbour	Sport facilities	Golf course	Polo fields	Filling station[H]
Landfill or waste treatment site[A]	Plantation	Agriculture	River, stream or wetland	Nature conservation area
Mountain, koppie or ridge	Museum	Historical building	Graveyard	Archeological site
Other land uses (describe):	Private Game Reserves			

If any of the boxes marked with an "N "are ticked, please consult an appropriate noise specialist to assist in the completion of this section.

Has a specialist been consulted?		NO	
If YES, please complete the following:			
Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Will the ambient noise level have a negative impact on the proposed activity?
If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

If any of the boxes marked with an "A" are ticked, please consult an appropriate air quality specialist to assist in the completion of this section.
Has a specialist been consulted? NO
If YES, please complete the following:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Will the ambient air pollution level have a negative impact on the proposed activity?
If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

If any of the boxes marked with an "H" are ticked, please consult an appropriate health assessment specialist to assist in the completion of this section.
Has a specialist been consulted? NO
If YES, please complete the following:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Will the surrounding land use pose any unacceptable health risk on the proposed activity?
If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

Alternative S3:

Other land uses (describe):				

If any of the boxes marked with an "N "are ticked, please consult an appropriate noise specialist to assist in the completion of this section.
Has a specialist been consulted?
If YES, please complete the following:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Will the ambient noise level have a negative impact on the proposed activity?

If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

If any of the boxes marked with an "A" are ticked, please consult an appropriate air quality specialist to assist in the completion of this section.
Has a specialist been consulted?
If YES, please complete the following:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Will the ambient air pollution level have a negative impact on the proposed activity?
If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

If any of the boxes marked with an "H" are ticked, please consult an appropriate health assessment specialist to assist in the completion of this section.
Has a specialist been consulted?
If YES, please complete the following:
Name of the specialist:
Qualification(s) of the specialist:
Postal address:
Postal code:
Telephone: Cell:
E-mail: Fax:
Will the surrounding land use pose any unacceptable health risk on the proposed activity?
If YES, specify and explain:
Are any further specialist studies recommended by the specialist?
If YES, specify:
If YES, is such a report(s) attached?

Signature of specialist: _____ Date:

6 CULTURAL/HISTORICAL FEATURES

Alternative S1

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?		NO
If YES, explain:		

Comment:
In order to reduce the impact to the environment, the pipeline route was selected to follow existing linear infrastructure. The potential for heritage resources along the existing pipeline and other linear infrastructure is anticipated to be minimal due to the previous disturbances that would have been caused during the construction of this infrastructure.

Regardless, a Phase 1 Heritage Impact Assessment, in accordance with the South African Heritage Resources Act (No. 25 of 1999), was conducted for the MCWAP Phase 1 route. The aforementioned study area included the preferred route for the de-bottlenecking section, and the Heritage Impact Assessment is contained in Appendix D.

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	The intensity of heritage resources in the study area is low. No heritage resources were identified along the MCWAP De-bottlenecking route.

Will any building or structure older than 60 years be affected in any way?		NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

Alternative S2

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?		NO
If YES, explain:		

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	

Will any building or structure older than 60 years be affected in any way?		NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		NO

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

Alternative S3

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?		
If YES, explain:		

If uncertain, conduct a specialist investigation by a recognised specialist in the field to establish whether there is such a feature(s) present on or close to the site.

Briefly explain the findings of the specialist:	

Will any building or structure older than 60 years be affected in any way?		
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?		

If yes, please submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION D: PUBLIC PARTICIPATION

Comment:
Refer to Appendix E for the Public Participation Report.

1 ADVERTISEMENT

The environmental assessment practitioner must follow any relevant guidelines adopted by the competent authority in respect of public participation and must at least –

1(a) Fix a notice in a conspicuous place, on the property where it is intended to undertake the activity which states that an application will be submitted to the competent authority in terms of these regulations and which provides information on the proposed nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations on the application may be made.

1(b) inform landowners and occupiers of adjacent land of the applicant's intention to submit an application to t he competent authority

1(c) inform landowners and occupiers of land within 100 metres of the boundary of the property where it is proposed to undertake the activity and whom may be directly affected by the proposed activity of the applicant's intention to submit an application to the competent authority;

1(d) inform the ward councillor and any organisation that represents the community in the area of the applicant's intention to submit an application to the competent authority;

1(e) inform the municipality which has jurisdiction over the area in which the proposed activity will be undertaken of the applicant's intention to submit an application to the competent authority; and

1(f) inform any organ of state that may have jurisdiction over any aspect of the activity of the applicant's intention to submit an application to the competent authority; and

1(g) place a notice in one local newspaper and any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of these regulations.

2 CONTENT OF ADVERTISEMENTS AND NOTICES

Advertisements and notices must indicate that an application will be submitted to the competent authority in terms of the EIA regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made;

3 PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for site alternatives where appropriate.

4 DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

5 COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to this application. The comments and response report must be attached under Appendix E.

6 LOCAL AUTHORITY PARTICIPATION

Local authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

Has any comment been received from the local authority?		NO

If "YES", briefly describe the feedback below (also attach any correspondence to and from the local authority to this application):

No comments were received from the local authority.

The Lephalale Local Municipality was directly informed of the project via the Background Information Document, which was distributed to the following parties (amongst others):

- Mayor;
- Municipal Manager;
- Manager: Water Services;
- Manager: Technical Services;
- Manager: Corporate Services;
- Manager: Community Services;
- Divisional Head: Environmental Health and Waste Management;
- Divisional Head: Environmental Landuse and Building Control;
- Manager: Planning and Development;
- Speaker; and
- Relevant Councillors.

The Lephalale Local Municipality also serves on the MCWAP Project Steering Committee.

7 CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?		NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2006, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the issues raised by interested and affected parties.

- Protection of game;
- Access;
- Excess spoil;
- Communication;
- Damage to property;
- Disturbance to animal watering points;
- Impact on hunting activities;
- Impact on game;
- Construction camp;
- Damage to existing water reticulation;
- Traffic Management;
- Input into EMP and contractor's specifications;
- Water off-take points;
- Compensation.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

Issue	Response
Protection of game	EMP and contractor's specifications to set requirements to be implemented. Environmental Control Officer (ECO) to monitor
Access	EMP and contractor's specifications to set requirements to be implemented. ECO to monitor
Excess spoil	To be taken to a suitable disposal site or existing quarries and borrow pits to be filled.
Communication	Complaints register to be kept on site. ECO to serve as contact for any construction-related queries.
Damages to property	Photographic evidence to be taken before construction for reference purposes. Contractor to repair any damage caused during construction.
Disturbance to animal watering points	EMP to provide measures to allow for animal migrations to watering points.
Impact on hunting activities	EMP to suggest environmental best practices. Site-specific measures will be discussed with each property owner. Compensation to be considered.
Impact on game	EMP to suggest environmental best practices. Site-specific measures will be discussed with each property owner.
Construction camp	Will be contractor's responsibility to identify location. Specifications will prescribe environmental best practices to manage construction camp(s).
Damage to existing water reticulation	Contractor and ECO to identify existing water reticulation in consultation with the landowner before construction starts. Safeguarding measures to be put in place.
Traffic management	Suitable traffic control measures to be included in the EMP.
Input into EMP and contractor's specifications	The landowners will have the opportunity to review the EMP, which will include all the requirements the contractor has to abide by. The project specifications relevant to each farm will also be discussed with the landowner for inputs.
Water off-take points	Formal process to request and consider water off-take points will be followed between interested landowners and DWA.
Compensation	TCTA's standard compensation protocol to be followed. Contractor will be responsible for repairing any construction-related damages.

2 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

List the potential site alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, including impacts relating to the choice of site alternatives.

Alternative S1 (preferred alternative)

Direct impacts:

- Possible impact of alignment on the following -
  - Structures (e.g. farm buildings);
  - Infrastructure (e.g. R510 road, access road to Wovenfontein, existing pipeline);
  - Protected trees; and
  - Watercourses (i.e. Rietspruit main stem and tributaries).

Indirect impacts:

- None identified.

Cumulative impacts:

- Impacts of existing river crossings to watercourse characteristics (i.e. flow, biota, habitat) may be exacerbated by the new pipeline crossings.

Alternative S2

Direct impacts:

- The siting of the pump station could impact on existing infrastructure at the Wolvenfontein Balancing Dams.

Indirect impacts:

- None identified.

Cumulative impacts:

- None identified.

Alternative S3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

- Without the de-bottlenecking of the existing pipeline, water from Mokolo Dam cannot be delivered at a rate higher than the capacity of the existing pipeline. A risk exists that water will then not be available for the commissioning of the first unit of Medupi towards the end of 2010.
- Should MCWAP De-bottlenecking not proceed, the adverse impacts associated with the project during the planning and design phase would not apply.

Indirect impacts:

- The shortage of water will suppress development, with associated socio-economic implications on a national scale.
- If the commissioning of Medupi is stalled, the ability of Eskom to supply the electricity needs will be jeopardised.

Cumulative impacts:

- None identified.

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Comment:
Note that a more comprehensive list of mitigation measures applicable to the Planning and Design Phase is contained in the Environmental Management Plan in Appendix G.

Alternative S1	**Alternative S2**
1 Due consideration to be given to existing structures and infrastructure during the finalisation of the alignment to prevent or minimise impacts. 2 The point where the proposed gravity main ties in with the existing pipeline, at the western end of the route, should not encroach upon the 1:100 year floodline nor the riparian habitat of the western tributary of the Rietspruit. 3 Final alignment will attempt to avoid protected trees. where possible. 4 River crossings of the Rietspruit main stem and eastern tributary should be selected to minimise impacts to watercourse characteristics.	1 Due consideration to be given to existing structures and infrastructure during the siting of the pump station to prevent or minimise impacts.

List the potential activity/technology alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase:

Alternative A1 (preferred alternative)

Direct impacts: ***Indirect impacts:***   ***Cumulative impacts:***

Alternative A2

Direct impacts: ***Indirect impacts:***   ***Cumulative impacts:***

Alternative A3

Direct impacts: ***Indirect impacts:***   ***Cumulative impacts:***

No-go alternative (compulsory)

Direct impacts: ***Indirect impacts:***   ***Cumulative impacts:***

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Alternative A1:	**Alternative A2:**	**Alternative A3:**

3 IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

List the potential site alternative related impacts (as appropriate) that are likely to occur as a result of the construction phase:

Alternative S1 (preferred alternative)

Direct impacts:

- Watercourses -
  - The pipeline crossings of the Rietspruit main stem and eastern tributary could lead to the alteration of the structure (i.e. bed and banks), damage to the riparian habitat, lead to increased siltation and adversely affect aquatic biota (e.g. clogging of gills, influence movement).
- Soil -
  - Erosion on slopes.
  - Loss of topsoil.
  - Establishment of borrow pits.
  - Blasting-related impacts.
- Flora -
  - Damage to / removal of protected trees and medicinal plants.
  - Damage to riparian vegetation at river crossings.
  - Encroachment by exotic species.
- Fauna -
  - Poaching.
  - Obstruction of movement.
  - Preventing access to watering points.
  - Harm from construction activities.
  - Loss of animals due to improper access control.
- Air -
  - Dust from use of dirt roads, transportation of fill and spoil material and from bare areas.
- Noise -
  - Noise associated with construction activities (e.g. vehicle movement, trenching, generators).
- Aesthetics -
  - Impacts to visual quality of the area through poor housekeeping and construction-related activities.
- Safety and Security -
  - Danger trench collapse.
  - Uncontrolled access.
- Waste -
  - Use of veld for ablution purposes.
  - Land, air and water pollution through poor waste management practises.
- Construction camp -
  - Siting of construction camp – visually obtrusive, vegetation clearing, poaching, security.
  - Improper storage of material.
- Socio-economic aspects -
  - Damages to property, including structures, fencing, gates, animals.
  - Establishment of temporary construction servitude.
  - Loss of income (e.g. temporary loss of agricultural land, influence to eco-tourism activities) due to construction-related activities.
- Infrastructure and Services -
  - Damage to existing river crossings at the Rietspruit main stem and eastern tributary.
  - Temporary interruption of water supply from existing pipeline to allow for tie-in of de-bottlenecking section of gravity main.
  - Influence to traffic along roads (R510 and dirt road to Wovenfontein).
  - Damage to dirt road to Wovenfontein through use by heavy vehicles.

Indirect impacts:

- Safety and Security -
  - Criminal activities associated with construction.
- Socio-economic aspects -
  - Influx of job seekers.
  - Use of local labourers and suppliers, as far as possible (positive impact).
- Infrastructure and Services -
  - Use of R510 and major road network by trucks delivering pipe material.

Cumulative impacts:

- Watercourses -
  - Impacts of existing river crossings to flow may be exacerbated by the temporary diversions.

Alternative S2

Direct impacts:

- Soil -
- Loss of topsoil.
- Blasting-related impacts.

- Flora -
- Damage to / removal of protected trees and medicinal plants.
- Encroachment by exotic species.

- Fauna -
- Poaching.
- Harm from construction activities.

- Air -
  - Dust from use of dirt roads, transportation of fill and spoil material and from bare areas.

- Noise -
  - Noise associated with construction activities (e.g. vehicle movement, trenching, generators).

- Aesthetics -
  - Impacts to visual quality of the area through poor housekeeping and construction-related activities.

- Safety and Security -
  - Uncontrolled access.

- Waste -
  - Use of veld for ablution purposes.
  - Land, air and water pollution through poor waste management practises.

- Construction camp -
  - Siting of construction camp – visually obtrusive, vegetation clearing, poaching, security.
  - Improper storage of material.

- Socio-economic aspects -
  - Damages to property, including structures, fencing, gates, animals.

- Infrastructure and Services -
  - Provision of electricity supply to pumpstation.
  - Temporary interruption of water supply from existing pipeline to allow for commissioning of pump station.
  - Influence to traffic along dirt road to Wovenfontein.

Indirect impacts:

- Safety and Security -
  - Criminal activities associated with construction.

- Socio-economic aspects -
  - Influx of job seekers.
  - Use of local labourers and suppliers, as far as possible (positive impact).

- Infrastructure and Services -
  - Electrical infrastructure (i.e. distribution line, substation) will be required to feed pumpstation. The impacts associated with the electrical infrastructure will include adverse affects to *inter alia* visual, socio-economic, faunal, and floral features.

Cumulative impacts:

- Infrastructure and Services -
  - Cumulative impact of electrical infrastructure required to feed the pumpstation and the existing overhead power lines in greater area.

Alternative S3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

- Without the de-bottlenecking of the existing pipeline, water from Mokolo Dam cannot be delivered at a rate higher than the capacity of the existing pipeline. A risk exists that water will then not be available for the commissioning of the first unit of Medupi towards the end of 2010.
- Should MCWAP De-bottlenecking not proceed, the adverse and positive impacts associated with the project during the construction phase would not apply.

Indirect impacts:

- The shortage of water will suppress development, with associated socio-economic implications on a national scale.
- If the commissioning of Medupi is stalled, the ability of Eskom to supply the electricity needs will be jeopardised.

Cumulative impacts:

- None identified.

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Comment:
Note that a more comprehensive list of mitigation measures applicable to the Construction Phase is contained in the Environmental Management Plan in Appendix G.

Alternative S1	**Alternative S2**
General - 1 Proper negotiations must be undertaken with the landowners before construction activities commence on any property. Key discussion points will include: o Communication channels; o Access; o Watering points; o Existing infrastructure; o Fencing and screening; o Site-specific requirements. 2 All areas affected by construction must be suitably reinstated and rehabilitated to pre-construction conditions or better. 3 The movement of any vehicles and/or personnel outside of designated working areas will not be permitted. Watercourses - 1 No construction material will be stockpiled in the 1:100 year floodline. 2 Intercept silt-laden runoff from construction site along eastern tributary of the Rietspruit. 3 Proper erosion and sedimentation prevention techniques to be implemented. 4 Riparian areas must be reinstated and exotic species must be removed and replaced with indigenous riparian vegetation during execution of rehabilitation. 5 Temporary diversion to be built to maintain a dry works area. 6 If possible, construction at the watercourse crossings should be undertaken during the dry season. 7 Pipelines to be encased with concrete to prevent any damage. 8 Tie-in points at riverbanks must be suitably safeguarded with gabion cut-off walls to prevent erosion. 9 Diversion to be removed and affected area to be reinstated following the installation of the pipeline and the concrete encasing. Soil - 1 Stabilisation of cleared areas to prevent and control erosion will be actively managed. The method chosen (e.g. watering, planting, retaining structures, commercial anti-erosion compounds) will be selected according to the site-specific conditions. 2 In areas to be affected by construction activities a minimum of 300mm of topsoil should be removed and stockpiled separately.	General - 1 Proper negotiations must be undertaken with the landowners before construction activities commence on any property. Key discussion points will include: o Communication channels; o Access; o Watering points; o Existing infrastructure; o Fencing and screening; o Site-specific requirements. 2 All areas affected by construction must be suitably reinstated and rehabilitated to pre-construction conditions or better. 3 The movement of any vehicles and/or personnel outside of designated working areas will not be permitted. Watercourses - 1 No construction material will be stockpiled in the 1:100 year floodline. 2 Intercept silt-laden runoff from construction site to tributary of the Rietspruit (to the south of the site). Soil - 1 Stabilisation of cleared areas to prevent and control erosion will be actively managed. The method chosen (e.g. watering, planting, retaining structures, commercial anti-erosion compounds) will be selected according to the site-specific conditions. 2 In areas to be affected by construction activities a minimum of 300mm of topsoil should be removed and stockpiled separately. 3 Permit to be sought for proposed borrow pits, in terms of the Minerals and Petroleum Resources Development Act (No. 28 of 2002). 4 Blasting to be undertaken in such a manner as to control impacts to existing Wolvenfontein reservoirs. Flora - 1 Control of alien invasive species in line with the requirements of the Conservation of Agricultural Resources Act will be undertaken. Fauna - 1 Demarcated construction area to be fenced off and to be screened with appropriate material. 2 Prosper access control, in negotiation with the landowner, to be employed. Air - 1 Dirt roads to be watered down. 2 Vehicles transporting soil must be covered.

3 Permit to be sought for proposed borrow pits, in terms of the Minerals and Petroleum Resources Development Act (No. 28 of 2002).
4 Blasting to be undertaken in such a manner as to control impacts to existing pipeline, roads (R510, access roads), other infrastructure, structures, human health and animals.

Flora -
1 Marking of all protected trees within construction servitude. These trees must not be damaged except if they fall within the direct right of way of the pipeline.
2 Permit(s) to be obtained under the National Forests Act (No. 84 of 1998) if protected trees are to be cut, disturbed, damaged, destroyed or removed.
3 Control of alien invasive species in line with the requirements of the Conservation of Agricultural Resources Act will be undertaken.

Fauna -
1 Demarcated construction servitude to be fenced off and to be screened with appropriate material.
2 Prosper access control, in negotiation with the landowner, to be employed.
3 Provision to be made for animal movement to watering points.

Air -
1 Dirt roads to be watered down.
2 Vehicles transporting soil must be covered.

Noise -
1 The provisions of SABS 1200A will apply to all areas within audible distance of residents.
2 Construction activities generating output levels of 85 dB or more will be confined to normal working hours.

Aesthetics -
1 Demarcated construction servitude to be screened off with appropriate material.

Safety and Security -
1 Demarcated construction servitude to be fenced off.
2 Compliance with Occupational Health and Safety Act (Act No. 85 of 1993).
3 Contractor to provide an Occupational Health and Safety Management Plan to the Construction Manager for approval prior to the commencement of works in terms of the Construction Regulations (2003).
4 All trenches must be clearly marked in order to alert people to the potential hazard. Barrier tape to be erected around open trenches.
5 Depending on geotechnical conditions, trenches to be shored.
6 All existing and new gates used for access to the site to be managed in accordance with the agreement with the specific landowner.
7 Two-way radios to be used, due to poor reception of cell phones in area.
8 Proper supervision of employees at all times. Employees to be clearly identifiable.

Waste -
1 Sufficient ablution facilities to be provided at the Construction Camps and along construction sites. Ablution facilities to be maintained.
2 Waste skips to be provided at the construction camp and on site. Skips to be cleaned weekly, and waste to be disposed off at a registered waste disposal site (e.g. Groothoek waste disposal site).

Noise -
1 The provisions of SABS 1200A will apply to all areas within audible distance of residents.
2 Construction activities generating output levels of 85 dB or more will be confined to the normal working hours.

Aesthetics -
1 Demarcated construction site to be screened off with appropriate material.

Safety and Security -
1 Demarcated construction site to be fenced off.
2 Compliance with Occupational Health and Safety Act (Act No. 85 of 1993).
3 Contractor to provide an Occupational Health and Safety Management Plan to the Construction Manager for approval prior to the commencement of works in terms of the Construction Regulations (2003).
4 All excavations must be clearly marked in order to alert people to the potential hazard. Barrier tape to be erected around open trenches.
5 Depending on geotechnical conditions, excavations to be shored.
6 All existing and new gates used for access to the site to be managed in accordance with the agreement with the specific landowner.
7 Two-way radios to be used, due to poor reception of cell phones in area.
8 Proper supervision of employees at all times. Employees to be clearly identifiable.

Waste -
1 Sufficient ablution facilities to be provided at the Construction Camps and at construction site. Ablution facilities to be maintained.
2 Waste skips to be provided at the construction camp and on site. Skips to be cleaned weekly, and waste to be disposed off at a registered waste disposal site (e.g. Groothoek waste disposal site).

Construction Camp -
1 Selection of construction camp to be undertaken in consultation with Environmental Control Officer (ECO) and landowner.
2 Site selection to avoid sensitive environmental features, such as 1:100 year floodline, ridges, and areas with protected trees.
3 Site plan of construction camp to be prepared, which must be approved by the ECO.
4 Camp site to be demarcated and to be screened off.
5 No accommodation to be provided at camp, apart from security.
6 Appropriate storage facilities for fuel, paint, cement bags, and other material with a potential to cause harm to the environment.

Socio-economic aspects -
1 Construction-related damages to be repaired by Contractor.
2 Establish employment strategy.

Infrastructure and Services -
1 Construction-related damages to be repaired by Contractor.
2 Any interruption of water supply from existing line to be as short as possible. Landowners and users to be notified well in advance of any interruption.
3 Traffic safety measures to be employed.
4 Ensure that landowners have proper access to their properties. Discuss disruptions with roads authority and landowner.
5 Make provision for traffic along affected public and

Construction Camp - 1 Selection of construction camp to be undertaken in consultation with Environmental Control Officer (ECO) and landowner. 2 Site selection to avoid sensitive environmental features, such as 1:100 year floodline, ridges, and areas with protected trees. 3 Site plan of construction camp to be prepared, which must be approved by the ECO. 4 Camp site to be demarcated and to be screened off. 5 No accommodation to be provided at camp, apart from security. 6 Appropriate storage facilities for fuel, paint, cement bags, and other material with a potential to cause harm to the environment. Socio-economic aspects - 1 Compensation for registration of construction servitude. 2 Construction-related damages to be repaired by Contractor. 3 Establish employment strategy. Infrastructure and Services - 1 Safeguarding of existing river crossings. 2 Construction-related damages to be repaired by Contractor. 3 Interruption of water supply from existing line to be as short as possible. Landowners and users to be notified well in advance of interruption. 4 Traffic safety measures to be employed. 5 Ensure that landowners have proper access to their properties. Discuss disruptions with roads authority and landowner. 6 Make provision for traffic along affected public and private roads. 7 Dirt roads to be monitored and repaired. 8 Limpopo Department of Roads and Public Transport to be notified of any disputations be trucks delivering pipe material.	private roads. 6 Dirt roads to be monitored and repaired.

List the potential activity/technology alternative related impacts (as appropriate) that are likely to occur as a result of the construction phase:

Alternative A1 (preferred alternative)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A2

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Alternative A1:	Alternative A2:	Alternative A3:

4 IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

List the potential site alternative related impacts (as appropriate) that are likely to occur as a result of the operational phase:

Alternative S1 (preferred alternative)

Direct impacts:

- Watercourses -
  - De-stabilisation of encased pipeline at river crossing or tie-ins at riverbanks.
  - Erosion during scouring.
- Flora -
  - Spreading of exotic vegetation.
- Fauna -
  - Obstruction of movement of aquatic biota at river crossings.
- Socio-economic aspects -
  - Loss of land with registration of permanent servitude.
- Aesthetics -
  - Visual impacts associated with aboveground infrastructure (i.e. access/valve chambers at approximately 500m intervals along the route; pipeline markers).
- Infrastructure and Services -
  - Temporary interruption of water supply from existing pipeline to allow for tie-in of de-bottlenecking section with MCWAP Phase 1 pipeline.
- Operation & Maintenance -
  - Construction-related impacts for any maintenance related work to pipeline infrastructure.
  - Less resources required than for pump station (i.e. option S2).

Indirect impacts:

- Infrastructure and Services -
  - Continual use of maintenance road will lead to erosion and damage to road surface.

Cumulative impacts:

- None identified.

Alternative S2

Direct impacts

- Flora -
  - Spreading of exotic vegetation.
- Socio-economic aspects -
  - Enlargement of the overall development footprint of the Wolvenfontein Balancing Reservoirs and associated infrastructure.
- Noise -
  - Noise associated with the operation of the pump station.
- Aesthetics -
  - Visual impacts associated with new structure for pump station.
- Operation & Maintenance -
  - Construction-related impacts for any maintenance related work to pipeline infrastructure.
  - More resource-intensive than de-bottlenecking pipeline (i.e. option S1).
  - Potential risk of failure, which will jeopardise water provision to users.

Indirect impacts:

- Infrastructure and Services -
  - Continual use of maintenance road will lead to erosion and damage to road surface.

Cumulative impacts:

- Infrastructure and Services -
  - Cumulative impact of electrical infrastructure required to feed the pumpstation and the existing overhead power lines in greater area.

Alternative S3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

- Without the de-bottlenecking of the existing pipeline, water from Mokolo Dam cannot be delivered at a rate higher than the capacity of the existing pipeline. A risk exists that water will then not be available for the commissioning of the first unit of Medupi towards the end of 2010.
- Should MCWAP De-bottlenecking not proceed, the adverse and positive impacts associated with the project during the operational phase would not apply.

Indirect impacts:

- The shortage of water will suppress development, with associated socio-economic implications on a national scale.
- If the commissioning of Medupi is stalled, the ability of Eskom to supply the electricity needs will be jeopardised.

Cumulative impacts:

- None identified.

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Comment:
Note that a more comprehensive list of mitigation measures applicable to the Operational Phase is contained in the Environmental Management Plan in Appendix G.

Alternative S1	**Alternative S2**
Watercourses - 1 Regular inspection of pipeline and river crossings. Possible failure of encasing of gabion-walls to be repaired. 2 Erosion protection at outlet of scour valve. Flora - 1 On-going programme to eradicate exotic vegetation. Fauna - 1 Provision for fish movement (e.g. fish ladder) at encased pipeline. Socio-economic aspects - 1 Compensation for loss of land with registration of permanent servitude. Aesthetics - 1 Aboveground infrastructure to be located at points where there is a minimal environmental impact, as far as possible. 2 Aboveground infrastructure to blend in with the natural environment (e.g. suitable cladding or painting with natural colours), as far as possible. Infrastructure and Services - 1 Any interruption of water supply from existing line to be as short as possible. Landowners and users to be notified well in advance of any interruption. 2 Dirt roads to be monitored and repaired when necessary. Operation & Maintenance - 1 Standard environmental best practices relating to construction work contained in EMP to be implemented during maintenance work.	Flora - 1 On-going programme to eradicate exotic vegetation. Socio-economic aspects - 1 Compensation for loss of land. Noise - 1 Noise dissipation measures to be employed at pump station. Aesthetics - 1 Pump station to blend in with the natural environment (e.g. suitable cladding or painting with natural colours), as far as possible. Infrastructure and Services - 1 Dirt roads to be monitored and repaired when necessary. Operation & Maintenance - 1 Standard environmental best practices relating to construction work contained in EMP to be implemented during maintenance work. 2 Control measures to be put into place to detect possible sources of failure.

List the potential activity/technology alternative related impacts (as appropriate) that are likely to occur as a result of the operational phase:

Alternative A1 (preferred alternative)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A2

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Alternative A1	Alternative A2	Alternative A3

5 IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING AND CLOSURE PHASE

List the potential site alternative related impacts (as appropriate) that are likely to occur as a result of the decommissioning or closure phase:

Comment:
It is envisaged that the pipeline will be used indefinitely, under suitable maintenance. Regardless, the section below discusses the impacts and mitigation associated with decommissioning. The impacts associated with the removal of the pipeline will be significantly more than if the pipe is left in situ. Hence, it is assumed that this option will be adopted in the discussion to follow (apart from the removal of the river crossings). It is further assumed that the aboveground structures will be demolished.

Alternative S1 (preferred alternative)

Direct impacts:

- Watercourses -
  - Should the encased pipeline crossings be removed, the characteristics of the watercourse (i.e. flow, habitat, water quality and aquatic biota) could potentially be adversely affected.
- Aesthetics -
  - Impacts to visual quality of the area during the demolition of aboveground structures.
- Waste -
  - Improper disposal of waste material generated during the demolition of structures.

Indirect impacts:

- None identified.

Cumulative impacts:

- None identified.

Alternative S2

Direct impacts:

- Aesthetics -
  - Impacts to visual quality of the area during the demolition of pump station structure.
- Waste -
  - Improper disposal of waste material generated during the demolition of structures.

Indirect impacts:

- None identified.

Cumulative impacts:

- None identified.

Alternative S3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

- Without the de-bottlenecking of the existing pipeline, water from Mokolo Dam cannot be delivered at a rate higher than the capacity of the existing pipeline. A risk exists that water will then not be available for the commissioning of the first unit of Medupi towards the end of 2010.
- Should MCWAP De-bottlenecking not proceed, the adverse and positive impacts associated with the project during the decommissioning and closure phase would not apply.

Indirect impacts:

- The shortage of water will suppress development, with associated socio-economic implications on a national scale.
- If the commissioning of Medupi is stalled, the ability of Eskom to supply the electricity needs will be jeopardised.

Cumulative impacts:

- None identified.

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Comment:
Note that a more comprehensive list of mitigation measures applicable to the Decommissioning and Closure Phase is contained in the Environmental Management Plan in Appendix G.

Alternative S1	**Alternative S2**
General - 1 Decommissioning Plan to be prepared. 2 Authorisation to be sough under *inter alia* Government Notice No. R. 385 of 21 April 2006 for decommissioning-related activities (where applicable). 3 Negotiations to be undertaken with affected landowners. Watercourses - 1 Affected sections of Rietspruit's channel, banks and riparian habitat to be adequately reinstated and rehabilitated. Aesthetics - 1 Waste material to be properly stored, collected, transported and disposed of. Waste - 1 Waste to be recycled or to be disposed off at a registered waste disposal site (e.g. Groothoek waste disposal site).	General - 1 Decommissioning Plan to be prepared. 2 Authorisation to be sough under *inter alia* Government Notice No. R. 385 of 21 April 2006 for decommissioning-related activities (where applicable). 3 Negotiations to be undertaken with affected landowners. Aesthetics - 1 Waste material to be properly stored, collected, transported and disposed of. Waste - 1 Waste to be recycled or to be disposed off at a registered waste disposal site (e.g. Groothoek waste disposal site).

List the potential activity/technology alternative related impacts (as appropriate) that are likely to occur as a result of the decommissioning and closure phase:

Alternative A1 (preferred alternative)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A2

Direct impacts:

Indirect impacts:

Cumulative impacts:

Alternative A3

Direct impacts:

Indirect impacts:

Cumulative impacts:

No-go alternative (compulsory)

Direct impacts:

Indirect impacts:

Cumulative impacts:

Indicate mitigation measures that may eliminate or reduce the potential impacts listed above:

Alternative A1	**Alternative A2**	**Alternative A3**

6 PROPOSED MANAGEMENT OF IMPACTS AND MITIGATION

Indicate how identified impacts and mitigation will be monitored and/or audited.

Alternative S1 **Alternative S2**

The responsibility for enforcing the implementation of the EMP throughout the project lifecycle is as follows:

- Planning and Design - Trans-Caledon Tunnel Authority (TCTA);
- Construction - TCTA;
- Operational - DWA; and
- Decommissioning - DWA.

TCTA, who is DWA's Implementing Agent for the MCWAP scheme, will appoint full-time suitably qualified Environmental Control Officers (ECOs) to undertake regular monitoring and auditing during the construction phase.

The ECO will be responsible for the following (amongst others):

- To monitor the execution of the mitigation measures contained in the EMP, and to ensure the safeguarding of the environment.
- To monitor compliance with the environmental authorisation(s).
- To monitor compliance with environmental legislation, in general.
- To facilitate communication between I&APs, TCTA and the Contractor.
- To inspect the construction site on a daily basis.
- To notify the appropriate environmental authorities of significant non-compliance.
- To prepare a Monitoring Report which will be forwarded to the project team, TCTA and representatives from the I&APs (i.e. community members). This report will include a checklist and an issues list. Where non-compliance is encountered, the significance of the associated impact will be recorded, and corrective measures will be identified. The issues list will highlight the most pertinent issues that require mitigation, and provide the due date for compliance.
- To train the Contractor, Site Agent, Construction Supervisor and Safety Officer on the mitigation measures, and to verify that the Contractor's employees have undergone induction on these measures.
- To compile a Schedule of Penalties for non-compliance.

Alternative A1	**Alternative A2**	**Alternative A3**

7 ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that sums up the impact that the proposed activity and its alternatives may have on the environment after the management and mitigation of impacts have been taken into account with specific reference to types of impact, duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts.

Alternative S1 (preferred alternative)

The proposed de-bottlenecking pipeline is regarded as the preferred option, due to the following reasons:

- The significant impacts are mainly associated with the construction phase, and are thus temporary in nature. With the adoption of the mitigation measures contained in the EMP and in Section C, Sub-sections 2 – 5, the significant impacts can be prevented, minimised, rehabilitated and compensated to a satisfactory level.
- Once the proposed pipeline has been installed, minimal maintenance would be required.
- The proposed pipeline affords the opportunity of linking with the proposed MCWAP Phase 1 pipeline, to allow for an increase in future water transfer from the Mokolo Dam to the anticipated developments in the Lephalale region.
- This option allows for the optimal utilisation of the capacity of the existing pipeline.
- The proposed pipeline route follows existing linear infrastructure, including the existing pipeline and its maintenance road, the main dirt road to Wolvenfontein and the R510. This route attempts to minimise the environmental impacts by running adjacent to areas that have already been disturbed by previous linear development. However, with proper reinstatement and rehabilitation, the opportunity exists to improve the state of these "infrastructure corridors".

Alternative S2

The proposed new pump station at Wolvenfontein Balancing Reservoirs is not regarded as preferable based on the following:

- Additional infrastructure will be required to convey electricity to the pump station.
- The significant impacts are mainly associated with the operational phase, and are thus long-term.
- An ongoing electrical supply will be required to operate the pump station. The pipeline will thus act as a rising main instead of a gravity main, which is not the sustainable option from an energy conservation perspective.
- A new reservoir will be required further along the route to allow for the equalisation of pressure.

Alternative S3

Alternative A1 (preferred alternative)

Alternative A2

Alternative A3

No-go alternative (compulsory)

The implications associated with maintaining the status quo, and not improving the utilisation of the existing pipeline, include the following:

- Water from Mokolo Dam cannot be delivered at a rate higher than the capacity of the existing pipeline, with the hydraulic constraints associated with the high-point along the route at Rietspruitnek.
- A risk exists that water will not be available for the commissioning of the first unit of Medupi towards the end of 2010, which may jeopardise Eskom's ability to supply electricity needs.
- The shortage of water will suppress development, with associated socio-economic implications on a national scale.

Conversely, should de-bottlenecking not proceed the adverse impacts associated with the project would not apply.

However, with the recruitment of the mitigation measures contained in this report and in the EMP, the benefits associated with the proposed MCWAP de-bottlenecking outweigh the negative aspects.

8 RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner). YES

If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment):

If "YES", please list any recommended conditions, including mitigation measures, that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

- Ongoing communication with the affected landowners and stakeholders (including Exxaro) during the implementation of the project is also regarded as critical.
- Diligent compliance monitoring by dedicated ECOs is crucial to ensure compliance with the stipulated management measures.
- River crossings in the Rietspruit to be suitably stabilised to prevent damage to the structure and function of the affected watercourses.
- Suitable flow diversion required to maintain dry works areas for river crossings.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Information in support of applications for exemption

Appendix G: Other information