THE PROPOSED CONSTRUCTION OF THE ROSEDALE WATER TREATMENT WORKS AND ASSOCIATED RAW WATER SUPPLY INFRASTRUCTURE, MTATHA: BASIC ASSESSMENT BACKGROUND INFORMATION DOCUMENT EIA REF: EC157/ORT/LN1&LN3/M/14-08

Compiled by:

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1. INTRODUCTION

The King Sabata Dalindyebo (KSD) Presidential Intervention Project was implemented to stimulate economic growth in and around the town of Mthatha, located within the KSD Local Municipality. One of the methods proposed for achieving this aim is the improvement of service delivery in the region. Amatola Water, together with the OR Tambo District Municipality have therefore proposed the implementation of the Mthatha Corridor Bulk Water Supply Scheme, which will allow for the upgrade and extension of existing water supply infrastructure. This scheme will initially focus on areas located within a 30 km radius of the existing Mthatha Dam, but may later be extended to a 50 km radius. Water for the proposed supply scheme will be sourced from the existing Mthatha Dam located north-west of the town.

GIBB was appointed by the OR Tambo District Municipality to develop a Masterplan for the proposed Mthatha Corridor Bulk Water Supply Scheme. This was completed during 2013 and identified the following upgrades, expansions and developments for implementation:

- (i) Upgrade of the infrastructure delivering raw water from the Mthatha Dam to the Thornhill Water Treatment Works (WTW);
- (ii) Extension of the capacity of the Thornhill WTW by a total of 60 MI/day;
- (iii) Upgrade of the clear water pumping capacity from the Thornhill WTW to Mthatha town and its southern and eastern surrounds;
- (iv) Construction of the new Rosedale WTW which will have a total treatment capacity of 100 Ml/day on completion, to supply the areas located to the north and west of Mthatha town;
- (v) Construction of a new system of bulk supply rising and gravity mains and reservoirs to transfer the clear water pumped out of the Thornhill and Rosedale WTW's to extend areas of supply along 5 new corridors:
 - Mqanduli Corridor (to the south);
 - Ngqeleni Corridor (to the south-east);
 - Libode Corridor (to the east);
 - Nqadu Corridor (to the north); and
 - Airport Corridor (to the west).
- (vi) Upgrade reticulation links to future growth areas in and around Mthatha;
- (vii) Upgrade the storage capacity where needed;
- (viii) Provision of strategic links to key institutions, including:
 - KD Matanzima Airport;
 - The Military Base near the airport;

- The Bedford Hospital; and
- The Nelson Mandela Hospital.

The upgrades and expansions to the Thornhill WTW as identified in points (i) and (ii) above, as well as the installation of bulk water supply infrastructure in the Libode Corridor, are already underway.

Prior to the commencement of construction on the other parts of the scheme, an application for Environmental Authorisation must be made to the Department of Environmental Affairs (DEA). To facilitate and expedite this application process, the greater supply scheme project has been broken down into a number of smaller projects, with separate applications being undertaken for each of the smaller projects.

Terratest (Pty) Ltd has been appointed to conduct the Environmental Authorisation process for the proposed new Rosedale WTW, as identified under point (iv) in the Masterplan; as well as for the southernmost part of the Sonyi rising main pipeline which runs from the Rosedale WTW to a separate command reservoir. The command reservoir and the remainder of this pipeline, which runs from the command reservoir and in a northerly direction, has undergone a separate application for environmental authorisation as part of the Nqadu Corridor.

2. ROSEDALE DEVELOPMENT PHASING

The proposed development is proposed to be undertaken in three phases, as detailed below.

(i) Phase 1

Establishment of a new WTW with the capacity to supply 25 MI of treated drinking water per day. Construction of this phase is proposed to commence during October 2014, with completion estimated for mid-2016. Phase 1 of the project is intended to supply areas located to the north of the Mthatha River, as well as the new bulk water supply infrastructure which is currently under construction in the Libode Corridor.

(ii) Phase 2

This will comprise an expansion of the WTW and associated infrastructure, to increase the water treatment and supply capacity of the plant by 25 MI per day, to a total of 50 MI per day. It is proposed that the construction of Phase 2 commence immediately following the commissioning of

Phase 1, coming online 2 years later, in mid-2018. The increased capacity will be utilised to supply further extensions to the Libode Corridor as well as the Ngqeleni Corridor.

(iii)Phase 3

This will result in a 50 MI/day increase in the treatment capacity of the WTW, resulting in a WTW with an ultimate treatment capacity of 100 MI/day. This phase will be implemented within the next 10 years and will be driven by future water supply demand.

3. DEVELOPMENT DETAILS

3.1 Rosedale WTW and Associated Infrastructure

The proposed Rosedale WTW will include the establishment of a number of components, as detailed below. The location of the proposed infrastructure is indicated in Figure 1.

(i) Abstraction and Raw Water Pump Stations

An existing abstraction point which currently feeds raw water to the Thornhill WTW is located at a point downstream of the Mthatha Dam wall. The current outlet tower infrastructure is sufficient to supply the raw water requirements of Phase 1 of the Rosedale project, though a new pump station (comprising a pump station building, three new pumps and associated electrical room) will need to be established to direct water to the new WTW.

Phases 2 and 3 of the Rosedale project will require that the abstraction point be upgraded. These upgrades would include the establishment of a new weir within the existing chute of the abstraction works, as well as the installation of a side outlet point, sump, sluice gates and raw water pump station.

(ii) Raw Water Rising Main and Reservoir

The Phase 1 raw water rising main is proposed to comprise a 600 mm diameter steel pipe and would run from the new raw water pump station at the abstraction point, to a raw water reservoir located adjacent to the proposed WTW, ultimately measuring approximately 1.9 km in length. The proposed route of this pipeline will cross the existing abstraction chute, requiring the establishment of a pipe bridge. This bridge is proposed to comprise of a single span, galvanised steel, truss box structure, measuring approximately 25 meters in length.

Phases 2 and 3 will require the establishment of a second 900 mm steel pipeline between the raw water pump station and reservoir. This pipeline will be aligned along the same route as the pipeline established during Phase 1.

The raw water reservoir will have a 12 MI storage capacity and would provide some redundancy in case of power failures, allowing water to be treated whilst power is restored to the raw water pump station. This removes the need to establish generators within the raw water pump station.

(iii)Rosedale WTW

The WTW will have a similar design to that of the existing Thornhill WTW. This is a requirement from OR Tambo District Municipality to ensure that the two WTW's have similar operation and maintenance requirements.

As described previously, the Rosedale WTW will be constructed in a phased manner, ultimately resulting in a treatment capacity of 100 MI/day.

The proposed WTW will comprise the following:

- Inlet works, where electrolyte polymers and flocculants are added to the raw water;
- Combined flocculation and sedimentation tanks;
- Rapid gravity sand filters (with wash water drawn off to wash water tanks for recycling);
- Sludge dewatering plant, with water recycling facilities;
- Electrical substation and switch room;
- Generator building for the provision of back-up electricity;
- Administration building;
- Control building;
- Internal pump stations;
- Chemical store area;
- Staff housing; and
- Internal access road.

(iv)Clear Water Rising Main Pipeline

The Phase 1 clear water rising main would comprise a 600 mm diameter steel pipeline, running between the WTW and a command reservoir, measuring approximately 1.8 km in length.

Phases 2 and 3 would require the installation of a second 900 mm steel pipeline between the WTW and the command reservoir. This pipeline would be aligned along the same route as the pipeline established during Phase 1.



Figure 1: Map indicating the layout of the proposed Rosedale WTW and associated infrastructure

3.2 Sonyi Rising Main

Included in this application for Environmental Authorisation is the southernmost portion of the Sonyi Rising Main. This pipeline runs in the Nqadu Corridor, located to the north of Mthatha and the Mthatha Dam. The remainder of the pipeline has undergone a separate Environmental Authorisation process and will not be evaluated in this application process.

The section of pipeline which does form part of this application runs between the Rosedale WTW and a separate command reservoir (which has also been assessed under a separate application and will not be discussed in this application). The pipeline measures 300 mm in diameter, approximately 1.75 km in length and comprises a steel pipe. The proposed route of the Sonyi Rising Main is indicated in Figure 2.



Figure 2: Map indicating the proposed route of the southernmost section of the Sonyi Rising Main which runs through the Nqadu Corridor

4. LEGAL CONTEXT

4.1 National Environmental Management Act, 1998 (Act No.107 of 1998)

Listed Activities triggered by the above-mentioned project are captured in the Environmental Impact Assessment (EIA) Regulations (2010) promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). More specifically, the Listed Activities are contained in Government Notice (GN) R544 and R546 (of 18 June 2010). Table 1 provides a summary of the Listed Activities which are applicable to the proposed project.

Number and Date	Activity	Listed Activity
GN R544 18 June 2010	9	 The construction of facilities or infrastructure exceeding 1 000 meters in length for the bulk transportation of water, sewage or stormwater – (i) with an internal diameter of 0.36 meters or more The proposed development includes the construction of raw water and clear water rising main pipelines which exceed 1 000 meters in length and which have an internal diameter in excess of 0.36 meters (ranging between 300 and 900 mm)
GN R544 18 June 2010	11	 The construction of (iii) bridges; (v) weirs; (x) buildings exceeding 50 square meters in size; (xi) infrastructure or structures covering 50 square meters or more – Where such construction occurs within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. The proposed development requires the construction of a pipe bridge, a new weir as part of the abstraction works, a pump station building and associated infrastructure in areas located within 32 meters of a watercourse. The pump station building and associated infrastructure will have a development footprint in excess of 50m².
GN R544 18 June 2010	18	 The infilling or depositing of any material of more than 5 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock or more than 5 cubic meters from: (i) a watercourse The installation of the weir will require the placement of structures in the existing abstraction chute. These structures may exceed 5 cubic meters in size.
GN R544 18 June 2010	22	The construction of a road, outside urban areas,(ii) where no reserve exists where the road is wider than 8 metersA road, in excess of 8 meters wide, and approximately 850 meters long,will need to be constructed to gain access to the WTW as well as to the boundaries of the WTW site.

Table 1: Listed Activities triggered	by the proposed development
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		The construction of a road wider than 4 meters with a reserve less than
		13.5 meters
		(a) In Eastern Cape…
		(ii) Outside urban areas, in:
		(gg) areas within5 kilometers from any other protected area
GN R546		identified in terms of NEMPAA
18 June 2010	4	
		An access and ring road measuring approximately 8 meters in width and
		850 meters in length will be established as part of the WTW. This proposed
		development site falls within 5 km of the Nduli Luchaba Nature Reserve.
		which is a protected area, identified in terms of the National Environmental
		Management Protected Areas Act. 2003 (Act No. 57 of 2003) (NEMPAA).
		The clearance of 1 hectare or more of vegetation where 75% or more of
		the vegetative cover constitutes indigenous vegetation.
		(a) In Eastern Cape
		(ii) Outside urban areas the following:
		(if) Areas within 5 kilometers from any other protected area
		identified in terms of NEMPAA
GN R546	13	
18 June 2010		The proposed development will require the clearance of in excess of 1 ha
		of vegetation. As the site is located within 5 km of the Nduli Luchaba
		Nature Reserve, and if the Vegetation Specialist identifies that in excess of
		75% of the vegetation which needs to be removed, is indigenous
		vegetation, then this activity will be triggered. This will be confirmed based
		on the findings of the specialist Vegetation Assessment.
		The clearance of an area of 5 hectares or more of vegetation where 75%
		or more of the vegetative cover constitutes indigenous vegetation
		(a) In Eastern Cape
		(i) All areas outside urban areas.
GN R546	1.1	
18 June 2010	14	The proposed development may require the clearance of in excess of 5 ha
		of vegetation. If the Vegetation Specialist identifies that in excess of 75% of
		the vegetation which needs to be removed, is indigenous vegetation, then
		this activity will be triggered. This will be confirmed based on the findings of
		the specialist Vegetation Assessment.
		The construction of:
		(iii) Buildings with a footprint exceeding 10 square meters in size; or
		(iv) Infrastructure covering 10 square meters or more
		Where such construction occurs within a watercourse or within 32 meters
		of a watercourse, measured from the edge of the watercourse
		(a) In Eastern Cape
		(ii) Outside urban areas, in:
GN R546	16	(hh) areas within5 kilometers from any other protected area
18 June 2010	10	identified in terms of NEMPAA
		The proposed development will require the construction of pump station
		huildings and hulk water supply infrastructure within and within 32 meters
		of a watercourse. These developments will have a footorint in excess of 10
		m^2 The proposed development site is located within 5 km of the Nduli
		Luchaba Nature Reserve which has been identified as a protected area in
		terms of NEMPAA.

As the proposed development triggers activities listed in Listing Notices 1 and 3, a **Basic Assessment Process** must be completed for Environmental Authorisation.

According to the regulations, it is necessary for the Applicant to appoint an independent Environmental Assessment Practitioner (EAP) to complete the applicable environmental authorisation application process on behalf of the Applicant. In this case, the relevant role players are:

Applicant	OR Tambo District Municipality		
Project Managers	Gibb Engineering and Architecture		
Implementing Agent	Amatola Water		
Environmental Assessment Practitioner	Terratest (Pty) Ltd		
Competent Authority	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism (DEDEAT).		

4.2 National Water Act, 1998 (Act No. 36 of 1998)

Section 21 of the National Water Act, 1998 (Act No. 36 of 1998) (NWA) lists water-related activities which are defined as Water Uses. The undertaking of a Water Use requires that an application for authorisation or a license be made to the Department of Water Affairs (DWA).

Water Uses which are applicable to this proposed development include:

- (a) Taking water from a water resource;
- (b) Storing water;
- (c) Impeding or diverting the flow of water in a watercourse; and
- (i) Altering the bed, banks, course or characteristics of a watercourse.

(i) Section 21(a) Water Use

A Water Use License for the abstraction of water from the Mthatha Dam (Section 21(a) Water Use), is already in place (License No. 12/T20E/A/931). This license authorises the OR Tambo District Municipality to abstract a total of 55.1 million m³ of water per year from the Mthatha Dam.

OR Tambo District Municipality has allocated the water for use as follows:

- 21.9 million m³/year to the Thornhill WTW;
- 15.3 million m³/year to the Rosedale WTW; and
- The remainder of 17.9 million m³/year to Eskom for use in hydropower generation.

The allocation for the Rosedale WTW equates to 41.9 Ml/day, which is sufficient to meet the 25 Ml/day demand of Phase 1 of the development. It is not sufficient, however, to meet the 50 Ml/day demand of Phase 2. It will be necessary, therefore for OR Tambo District Municipality to allocate a greater volume of water to the Rosedale WTW (decreasing Eskom's allocation), or alternatively, to apply to DWA for an extension of the license. This could be accommodated as the Mthatha Dam has a total supply potential of 145.5 million m³/year, which easily meets the current demand of 55.1 million m³/year, with spare capacity for future increases in demand.

The application for the extension of the Water Use License has not been included in Terratest (Pty) Ltd's scope of work and will be undertaken by GIBB.

(ii) Section 21(b) Water Use

The Mthatha Corridor Bulk Water Supply Scheme requires the construction of a number of reservoirs for the storage of water. As none of these reservoirs fall within the scope of the application being facilitated by Terratest (Pty) Ltd, no applications for Water Use Licenses in terms of Section 21(b) water uses will be undertaken by Terratest (Pty) Ltd. These applications will be handled by the relevant EAP's on the sections of the project which include reservoirs.

(iii) Section 21(c) and (i) Water Uses

As infrastructure will need to be established both within and in close proximity to a watercourse (the Mthatha River where is exits the Mthatha Dam), an application for the authorisation of water uses which require the impeding or diverting of flow, or the altering of the bed, banks, course or characteristics of a watercourse, needs to be undertaken.

As the water uses will occur within a 500 meter radius of the boundary of a wetland, in terms of the exclusions listed in GN 1199 of 18 December 2009, these water uses are excluded from General Authorisation and must be subject to a Water Use License Application. This application process will be undertaken by Terratest (Pty) Ltd and will run in parallel to the Environmental Authorisation process.

5. PROJECT LOCALITY

The project area is located to the north-west of the town of Mthatha, situated in the KSD Local Municipality. This municipality falls under the jurisdiction of the OR Tambo District Municipality, located within the Eastern Cape Province. The co-ordinates of the center of the proposed development site are: 31° 32' 28.80" S and 28° 45' 03.53" E. The location of the proposed development site is indicated in Figure 3.



Figure 3: Topographic map indicating the location of the proposed development site.

6. GENERAL SITE DESCRIPTION

6.1 Biodiversity

According to Mucina and Rutherford (2006) the vegetation of the site comprises a combination of Mthatha Moist Grassland and Eastern Valley Bushveld (see Figure 4). These vegetation types comprise a mixture of species-poor, wiry grasslands supporting *Eragrostis plana* and *Sporobolus africanus*, and semi-deciduous savanna woodland in a mosaic with thickets comprised of succulents including *Euphorbias* and *Aloes*.

Based on the fact that less than 60% of its original extent remains, Mthatha Moist Grassland has been identified as a Vulnerable Ecosystem in terms of the National List of Ecosystems that are Threatened and in Need of Protection, published in GN 1002 of 9 December 2011 and promulgated in terms of the National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA). As such, this is deemed to be an ecosystem at high risk of undergoing significant ecological degradation in terms of structure, function or composition as a result of human activities. It is therefore important to fully identify and evaluate potential detrimental impacts on this ecosystem as a result of the proposed development, as well as to identify and implement mitigation measures to avoid, minimize and control potential impacts.

A query of the Critical Biodiversity Areas (CBA) database for the region indicates that portions of the proposed development site fall within areas classified as CBA 2 (Figure 5). This means that the vegetation of the area is in a near natural state. Recommended land use objectives in areas classified as CBA 2 include maintenance of biodiversity in a near natural state with minimal loss of ecosystem integrity. No transformation of natural habitat should be permitted¹.

It must be noted that the site for this proposed development is predominantly transformed, mainly by cultivation, grazing and residential development. It does not therefore closely resemble the Mthatha Moist Grassland or Eastern Valley Bushveld vegetation types nor the CBA classifications described above.

¹ Eastern Cape Biodiversity Conservation Plan (2007)

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Figure 4: Map indicating the vegetation types of the proposed development site and surrounds (from Mucina and Rutherford, 2006).



Background Information Document

Figure 5: Map indicating the CBA Classification of the proposed development site and surrounds (from ECBCP, 2007).

6.2 Heritage

The National Heritage Resources Act, 1999 (Act No 25 of 1999) makes provision for the protection of national heritage. Impacts on heritage resources as a result of the proposed development therefore need to be identified, evaluated and mitigated through the Environmental Authorisation process. As such, a Heritage Impact Assessment (HIA) will be conducted in order to determine the presence, and to assess the cultural and heritage significance, of any findings. This specialist study will be included in the Basic Assessment Report.

7. ENVIRONMENTAL SCOPE OF WORK

The proposed development requires a Basic Assessment (BA) process for Environmental Authorisation. This process will be undertaken in accordance with the Regulations contained in GN R543 of 18 June 2010, promulgated under the NEMA, 1998. A description of the activities which will be undertaken as part of the Basic Assessment process is provided below.

7.1 Public Participation Process

- 1. Identify key stakeholders, authorities, government departments and municipalities, environmental groups and interested or affected members of the public, hereafter referred to as IAPs;
- 2. Compile a detailed Background Information Document (BID) (this document) for the proposed development, providing details to IAPs of:
 - a. The listed activities that trigger the BA process;
 - b. The scope of work;
 - c. The locality and current land use at the site;
 - d. A brief site description;
 - e. The BA process to be followed; and
 - f. The opportunity for IAPs to comment on the project.
- 3. Advertise the environmental application in regional and local newspapers;
- 4. Placement of notification posters on the site and other conspicuous localities within the community/municipal area;
- 5. Give written notice to landowners and occupiers within 100m of the proposed project area, as well as the local authority;
- 6. Notification to the landowner if the landowner is not the applicant;
- Record all comments of IAPs and present such comments, as well as responses provided by Terratest (Pty) Ltd, in a full Comments and Responses Report, which will be included in the Draft and Final Basic Assessment Reports that will be submitted to the DEDEAT; and

8. Circulate all IAP comments to the Project Team.

7.2 Impact Identification, Evaluation and Mitigation

Based on comments received and following site visits and desktop assessments of the environment within which the development is proposed, specialist studies will be commissioned to assist in the identification of potential impacts associated with the development, the evaluation of the significance of these impacts and the provision of recommendations for impact avoidance, control and minimisation. The following studies are likely to be undertaken:

- **Vegetation Assessment** aimed at identifying the state of the vegetation on site with a view to determining its conservation significance;
- Heritage Impact Assessment to identify any heritage resources on the site and ensure that these are protected;
- **Geotechnical Assessment** to establish the surface and subsurface engineering geological properties of the proposed development site; and
- Aquatic Assessment / Wetland Identification and Delineation to identify the presence of any aquatic systems in proximity to the development site, any impacts the development may have on these systems and to provide recommendations for the avoidance, control and minimisation of these impacts.

7.3 Reporting and Decision-Making

Utilising information obtained from the Public Participation Process and the Specialist Studies, Terratest (Pty) Ltd will prepare a Draft Basic Assessment Report (DBAR) and Environmental Management Programme (EMPr). In line with the regulations, these documents will be made available to all relevant stakeholders and registered IAPs, for review and comment for a period of 40 days, following which the report will be finalised and submitted to the DEDEAT for decision-making.

8. HOW DO I PARTICIPATE?

Every proposed development has the potential to significantly affect the natural and social environments, both at, as well as surrounding the proposed site. For this reason it is imperative that you as a stakeholder or an interested and/or affected party (IAP) comment on the proposed project and **highlight issues or concerns** that you feel need to be considered during the proposed planning and implementation processes. Should you wish to register as an IAP or should you have any comments regarding the proposed development, please provide your **contact details**, **state your interest** in the proposed development and submit any **comments or queries** you may have before the **15**th **August 2014**. A registration form is attached.



REGISTRATION & COMMENT SHEET BASIC ASSESSMENT FOR THE PROPOSED ROSEDALE WTW AND ASSOCIATED INFRASTRUCTURE, KSD LOCAL MUNICIPALITY

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I wish to register as an Interested and Affected Party and/or bring to the attention of Terratest (Pty) Ltd the following comments (please use additional sheets of paper if required).

Attention: Sarah Baxter

(In order for your contact det	ails to be captured corre	ectly on our datab	ase - Please <u>cl</u>	early fill out the sheet below)
Name of				Title
Respondent:				
Organization /				
Company:				
Postal Address:				
Postal Code:				
Telephone Number:			Code:	
Facsimile Number:			Code:	
Mobile Number:				
Email:				
Comments:				
liqned:		Date:		