

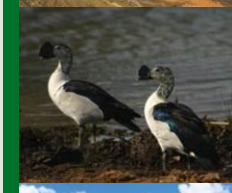








BASIC ASSESSMENT REPORT

MOPANI DISTRICT WATER AND WASTEWATER REVITALISATION PROGRAMME - REFURBISHMENT AND UPGRADE OF THE GIYANI WASTEWATER TREATMENT WORKS

EIMS REF#: 1113

DEA REF# 14/12/16/3/3/1/1524

Environmental Impact Management Services (Pty) Ltd
Block 5 Fernridge Office Park, 5 Hunter Avenue,
Ferndale, Randburg.
P.O. Box 2083, Pinegowrie 2123
Tel: +27(0)11 789-7170
Fax: +27(0)11 787-3059

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Leaders in Environmental Management

MOPANI DISTRICT WATER AND WASTEWATER REVITALISATION PROGRAMME – REFURBISHMENT AND UPGRADE OF THE GIYANI WASTEWATER TREATMENT WORKS

BASIC ASSESSMENT REPORT

DOCUMENT CONTROL

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REVISION AND AMENDMENTS

Date	No.	Description Of Revision Or Amendment
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Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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, 2014 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. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. 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.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. 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.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.
14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.

15. Shape files (.shp) for maps must be included in the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section? NO
If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

a) Describe the project associated with the listed activities applied for

1.1 Introduction

The Department of Water and Sanitation (DWS) mandated Lepelle Northern Water to refurbish and upgrade the Giyani Wastewater Treatment Works (WWTW) as part of the greater Giyani bulk water supply project. The WWTW facility is currently operating at a hydraulic loading of approximately 6 Ml/day, which is insufficient for current needs.

This Basic Assessment will assess the impact of the proposed expansion. The upgrade will aim to upgrade the facility to treat 14Ml/day, to cater for the 10 year design period. The new works will consist of two equal activated sludge reactors, each of 7Ml capacity, hereafter referred to as Modules 1 and 2. The WWTW inlet works will be upgraded to handle the projected inflow of 21Ml/day (making provision for rainfall events) at the end of the planning period. As part of the upgrade, the temporary activated sludge works shall be demolished, but the current biological filter plant shall be retained as a backup facility. The facultative ponds shall be converted to emergency overflow dams in order to deal mainly with storm water ingress during rainy periods.

As part of upgrade the chlorination system shall be refurbished and upgraded. As with the current facility, the final effluent will be to treated to DWS General Standards and it will be disposed of in the Little Letaba River. Figure 1 below provides an indication that current waste water quality at the inflow to the existing WWTW. It can be seen from these parameters that aeration and disinfection are of paramount importance to ensure DWS effluent standards are met.

No	Parameter description	Measurement
1	pH - Value at 25°C	7.8
2	Suspended solids	329 mg/l
3	Volatile suspended solids	273 mg/l
4	Settleable solids at 550°C (Non biodegradable Particulate)	10 ml/h
5	Total Alkalinity as CaCO3	304 mg/l
6	Total Phosphate as P	7.5 mg/l
7	Chemical Oxygen Demand	700 mg/l
8	Total Kjeldahl Nitrogen	65 mg/l
9	Kjeldahl Nitrogen (Non biodegradable Particulate)	47 mg/l

Figure 1: Parameters of a Waste water sample at inlet works

It is proposed that the new activated sludge works shall apply a Modified Ludzack-Ettinger (MLE)–process and each 7Ml module shall consist of a biological reactor incorporating anaerobic, anoxic and aeration zones, with surface aeration being applied. Secondary clarification shall consist of two 28 metre diameter clarifiers per module. The MLE process consists of the modification of a conventional activated sludge process where an anoxic zone is created or added upstream of the aerobic zone.

The process uses an internal recycle that carries nitrates created in the nitrification process in the aerobic zone along with the mix liquor to be mixed in the influent to the anoxic zone. The amount of nitrates potentially removed in the anoxic zone depends on the recycle flow and availability of influent BOD. Wasted activated sludge (WAS) shall be drawn off and dried using a Volute™ sludge drying press, where after it shall be deposited in a skip to be disposed of as per the most recent sludge classification.

1.2 WWTW design

A nutrient removal activated sludge works is proposed in the 3 stage Phoredox process configuration.

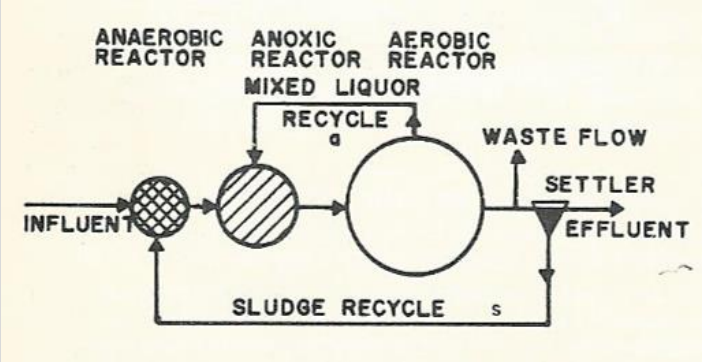


Figure 2: Schematic layout of the 3 stage Phoredox process

This process will enable total nitrogen removal and sufficient phosphate removal so that effluent to General Standards can be achieved with the given inflow characteristics.

1.2.1 Operating Modules

A 14Ml upgrade will be required at the end of the 10 year design period, which will now be executed in two equal 7Ml modules; referred to as Modules 1 and 2. The old phase 1 biological filter works, which is currently non-operational, will be demolished to make way for Modules 1 and 2.

The recently commissioned biological filter process of 1.5Ml capacity will be retained and operated in parallel with the 14Ml activated sludge works as a standby unit.

The temporary 1.5Ml activated sludge works will be retained and operated in parallel with the 14Ml modules and biological filter works, until the commencement of construction of Module 3, when it will be decommissioned to make way for Module 3.

1.2.2 The Inlet works

The existing inlet works has only been designed to handle flows of up to 9Ml/d and will therefore have to be replaced by a new inlet works. A layout of the proposed inlet works is presented in Annexure A3 and a three dimensional view in Figure 3.

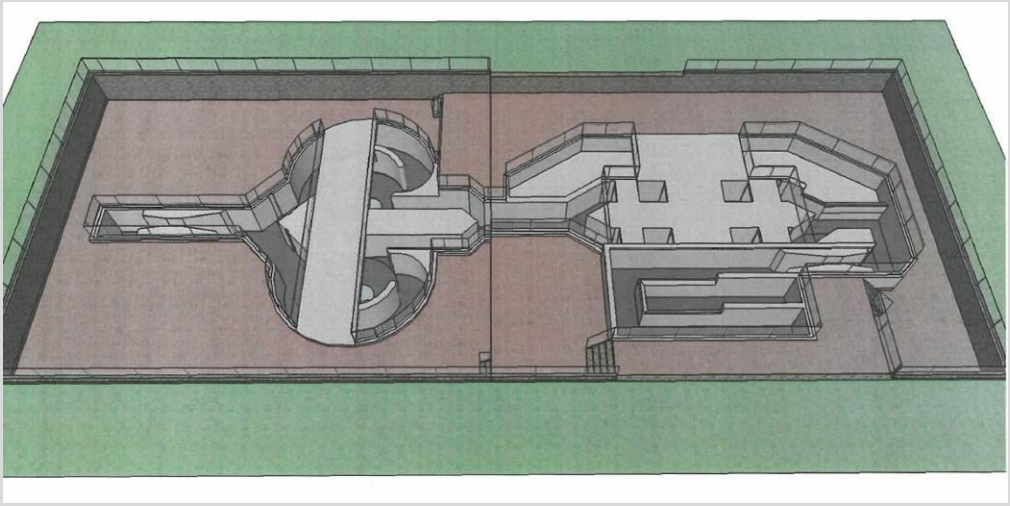


Figure 3: Three dimensional view of proposed Inlet Works

A new Inlet Works is therefore proposed to handle the total planned 21Ml (ADWF) inflow, with its accompanying peak dry weather flows (PDWF). The inlet works shall be preceded by a flow diversion mechanism consisting of a Venturi flume and overflow weirs, which will be set to divert the difference between experienced wet weather peak inflows and the design PDWF for Modules 1 and 2, to an emergency overflow pond. The diverted flow will be recycled during periods of low inflow. The overflow weirs will be adjustable, to be reset when Module 3 is added.

The Inlet Works will incorporate two sets of mechanical screens (rough and fine) in two parallel channels, for screenings removal; complete with screenings dryer and compression. The screenings will be deposited into an adjacent 6m³ skip, to be conveyed to a municipal landfill site when full. Two skips will be required; one as a standby. A bypass channel will be provided which contains a hand operated screen, for periods when the mechanical screens may not be in operation.

Two parallel operating, vortex-type mechanical grit removal mechanisms will be provided as per typical layout illustrated in Figure 4. The removed grit will be mechanically deposited in an adjacent skip as per Figure 4.

Figure 4: Two parallel Vortex grit removal mechanisms

Figure 5: Mechanical grit conveying into a skip

Flow level control through the inlet works will be executed by means of a Parshall flume with a throat width of 305mm. The inlet channel to the inlet works will be at a level of 447.44 (about 2.3m below natural ground level) to accommodate future deeper outfall sewers.

The existing inlet works will be decommissioned and demolished once the upgraded works has been completed and commissioned.

1.2.3 Main pump station and Division Box

A main pump station and division box will follow after the inlet works. The pump sump will have a capacity of 42m³. For Modules 1 and 2 five identical dry well Gorman-Rupp pumps will be provided (one astandby) to handle flows ranging from 291 to 1167m³/hour. A further two similar pumps will be required for Module 3.

The pumps will lift the inflow into an adjacent elevated division box which can divert the flow four ways, namely: Up to1.5Ml/day (with peaks) to the existing biological filter works, 7Ml/day each to the two new activated sludge modules and 1.5Ml/day to the temporary works. The latter division chamber will be convertible to be adjusted to 7Ml/day when Module 3 is implemented. During the initial operation period following the commissioning of Modules 1 and 2, the flow to the biological filter works will be throttled to about 0.5Ml/day, to keep it active as a standby unit.

1.2.4 The Biological Reactors

Two circular biological reactors will be provided (Modules 1 and 2) as per the configuration presented in Annexure A4 and similar to the unit presented in Figures 6 and 7.

Figure 6: Typical biological reactor to be constructed

Figure 7: Aeration zone in the outer channel

Its outside water surface diameter shall be 44m, its normal operating depth 5.05m and the total capacity 7650m³ per reactor. A portion of the outer channel will contain the anaerobic zone, which will be mixed, the inner circular chamber will be the anoxic zone with two mixers and the balance of the outer channel will be the aeration zone with 5 aerators. In addition, aerators will be of the bridge mounted surface type, while mixers will also be bridge mounted.

1.2.5 Clarifiers

Two circular 30m diameter clarifiers will be provided per module (therefore a total of four), similar to that presented in Figure 8. See also Annexure A5.

Figure 8: Typical configuration of the proposed clarifiers

The clarifiers will each have a side wall depth of 4.5m and sludge collection will take place by means of a rotating half bridge connected to a suction-lift mechanism. The clarifier effluent will flow over v-notch weir plates fixed to the outside perimeter wall of the settlement chamber of the clarifier and be collected via an effluent launder, from where it will be fed to the disinfection units. No scum baffles will be provided to prevent selective growth of poor settling organisms.

1.2.6 Disinfection

The existing chlorine contact channels will be upgraded and the chlorination building refurbished to cater for the full future 21Ml/day works. The total volume of the upgraded channels shall be 450m³. The existing chlorine contact channels and chlorination building are shown in Figures 9 and 10 respectively. The final chlorinated effluent will be released into the Little Letaba River.

Figure 9: Existing chlorine contact channels

Figure 10: Existing chlorination building

1.2.7 Waste activated sludge (WAS)

Excess activated sludge (waste activated sludge, referred to as WAS), will be drawn off from the biological reactors of Modules 1 and 2 and pumped in an unthickened state to the Volute™ sludge drying press to receive a coagulant before being dried, where after the dried sludge shall be deposited in a waste skip for removal to a sludge storage site. The dried sludge will be regularly classified as per regulations and disposed of in a way permissible according to its most recent classification. The supernatant liquid from the drying press will be returned to the head of works.

1.2.8 Pond systems

The facultative ponds will be converted into emergency overflow storage ponds. Pond 1 will be the main storage unit and will contain 24 hour of continuous peak storm water inflow; therefore sufficient for almost any occurrence. Ponds 2 to 5 will not be drained, but will provide additional buffer capacity. Diverted storm water will only be recycled from Pond 1. One drywell pump will be provided for this purpose. The reed beds are in a serious state of neglect and will not be accommodated in the upgraded works.

1.2.9 Conservancy tanker effluent

The facilities currently in place to receive conservancy tanker effluent appears to be in an acceptable state and working well and it is therefore recommended that this be retained unchanged.

1.2.10 Emergency power generation

The electricity supply to the works is currently being upgraded to 1MVA while a 800KVA standby generator will be provided to power selected mechanical treatment units during power disruptions.

1.2.11 Office and control room with laboratory

A new office and control room with a minimally equipped laboratory will be constructed as part of the proposed works.

1.2.12 Staff Requirements

Both as a 14Ml/day and the eventual 21Ml/day works the plant will classified as a Class C works, which means at it must have a Class 111 operator per shift and a Class V supervisor.

b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 734, 735 and 736	Description of project activity
GN R.983 Item 12(vi): The development of- (i) canals exceeding 100 square metres in size; (ii) channels exceeding 100 square metres in size; (iii) bridges exceeding 100 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; (v) weirs, where the weir, including infrastructure and water surface area, exceeds 100 square metres in size; (vi) bulk storm water outlet structures exceeding 100 square metres in size; (vii) marinas exceeding 100 square metres in size; (viii) jetties exceeding 100 square metres in size; (ix) slipways exceeding 100 square metres in size; (x) buildings exceeding 100 square metres in size; (xi) boardwalks exceeding 100 square metres in size; or (xii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from	The construction of the WWTW would require an effluent discharge point that would be within 32 metres of a water course. It is anticipated that related infrastructure would trigger the 100m^2 threshold.

the edge of a watercourse; - excluding- (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; or (ee) where such development occurs within existing roads or road reserves.	
GN R.983 Item 31(ii): The decommissioning of existing facilities, structures or infrastructure for- (ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;	The decommissioning of the temporary activated sludge works and other infrastructure to facilitate the WWTW expansion and upgrade.
GN R.983 Item 57: The expansion and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage where the capacity will be increased by 15000 cubic metres or more per day and the development footprint will increase by 1000 square meters or more.	Expansion of the WWTW by increasing the treatment capacity from 6000 cubic metres to 14 000 cubic meters. As part of this proposal the inlet works will be upgraded to allow for a maximum of 21ML/day of inlet water, to cater for future expansion if required.
GN R.985 Item 12(a)(ii): The clearance of an area of 300 square meters or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.- (a) (ii) within a critical biodiversity areas identified in bioregional plans	The application area falls within a CBA area, however based on the specialist ecological study no natural vegetation remains on site where the infrastructure will be constructed. The adjacent wetland, is considered to be pristine forming part of the site will also include minor infrastructure in terms of effluent discharge.

2. FEASIBLE AND REASONABLE ALTERNATIVES

"alternatives", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

(a) the property on which or location where it is proposed to undertake the activity;
(b) the type of activity to be undertaken;

(c) the design or layout of the activity;
(d) the technology to be used in the activity;
(e) the operational aspects of the activity; and
(f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) 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.

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed WWTW upgrade will improve the existing WWTW by decommissioning aged infrastructure and rebuilding the facility with an increased treatment capacity. Thus no site alternatives were considered.	23°19'31.78"S	30°42'31.26"E
Alternative 2		
Alternative 3		

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		

- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional 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.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed WWTW upgrade will improve the existing WWTW. No layout alternatives were considered since the upgrade is limited by the location and size of existing infrastructure.	23°19'31.78"S	30°42'31.26"E
Alternative 2		
Alternative 3		

c) Technology alternatives

Alternative 1 (preferred alternative)
No technology alternative were assessed, since the upgrade is constrained to the existing WWTW system used (aerobic & anaerobic, and disinfection treatment processes).

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)

e) No-go alternative

The current status quo is not desirable, since the existing WWTW is overloaded and not fully

functional in terms of screening and disinfection. Historically the plant has had uncontrolled sewage discharge into the adjacent water course during high rainfall event. This poses a significant threat the health, through water borne diseases outbreaks.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:	**Size of the activity:**
Alternative A1[1] (preferred activity alternative)	~22 500 m^2
Alternative A2 (if any)	
Alternative A3 (if any)	

or, for linear activities:

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

b) 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)	~80 000m^2
Alternative A2 (if any)	
Alternative A3 (if any)	

4. SITE ACCESS

Does ready access to the site exist?	YES
If NO, what is the distance over which a new access road will be built	

Describe the type of access road planned:

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

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

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map.). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s;)
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (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).

6. LAYOUT/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:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre 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 report**.** It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 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.

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	[redacted]
The proposed project will upgrade the existing WWTW located on the property.		
2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)	YES	[redacted]
Improved service delivery in included as an overarching SDF objectives. In terms of the spatial development framework, the lack of service infrastructure or specific types of service infrastructure has a very negative impact on economic development of the province. In that regard it is noted that the most important types of infrastructure are, roads, air transport, rail transport, electricity, water and telecommunication. The provision and availability of the above-mentioned infrastructure is therefore noted as a cause for concern for economic development.		
(b) Urban edge / Edge of Built environment for the area	YES	[redacted]
The site is located within a rural area, and no urban edges have been defined. However the proposed upgrade would not alter the built environment edge.		
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	[redacted]
The Greater Giyani Local Municipality IDP was not available to the EAP at the time of compilation of the form. However, the 2014 IDP identifies infrastructure development as one of the challenges within the municipality.		
(d) Approved Structure Plan of the Municipality	YES	[redacted]
The proposed project will upgrade the existing WWTW located on the property.		

(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)		NO	
A formally adopted EMF for Giyani could not be identified. The proposed project will upgrade the existing WWTW located on the property thus it will be in line with existing land uses and zoning.			
(f) Any other Plans (e.g. Guide Plan)		NO	
No details of any other plans are currently available to the EAP			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES		
The proposed project will upgrade the existing WWTW located on the property.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES		
Following water and sanitation issues within the Mopani District Municipality, the Minister of Water and Sanitation gave Lepelle Northern Water a directive in terms of Section 41(1)(ii) of the Water Services Act, Act 108 of 1997 to intervene on the Giyani water and waste water treatment works and associated infrastructure in order to restore water supply to the residents. The proposed upgrade will improve waste water treatment in the area, which is currently very constrained so as to meet the requirements of the said directive.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES		
The current WWTW will increase the treatment capacity of the plant. At present the plant is overloaded and the proposed bulk water supply project will increase the load on the plant. Thus the WWTW has to be upgraded to meet the incoming loads from the bulk water supply scheme.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES		
The WWTW upgrade is part of the greater Giyani bulk water supply upgrade scheme.			

7. Is this project part of a national programme to address an issue of national concern or importance?	YES		
Following water and sanitation issues within the Mopani District Municipality, the Minister of Water and Sanitation gave Lepelle Northern Water a directive in terms of Section 41(1)(ii) of the Water Services Act, Act 108 of 1997 to intervene on the Giyani water and waste water treatment works and associated infrastructure in order to restore water supply to the residents. The proposed WWTW will improve service delivery and reduce uncontrolled discharges into water courses.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES		
The proposed project will upgrade the existing WWTW located on the property.			
9. Is the development the best practicable environmental option for this land/site?	YES		
The proposed project will upgrade the existing WWTW located on the property in an already impacted area.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES		
The proposed project will upgrade the existing WWTW located on the property. The upgrade will reduce uncontrolled discharges which impact on local residents and livestock.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO	
The proposed project will upgrade the existing WWTW located on the property.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	
The proposed project will upgrade the existing WWTW located on the property.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	
The proposed project will upgrade the existing WWTW located on the property.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO	
The project does not form part of any of the Strategic Infrastructure Projects. However, the project is considered an emergency project as part of projects to restore water supply in Giyani. Following concerns raised by Giyani residents on challenges of water and sanitation services the Minister of Water and Sanitation issued a directive in terms of Section 41(1)(ii) of the Water Services Act, Act 108 of 1997 for immediate intervention (see copy of the directive is attached – Appendix J). Furthermore, the development of the WWTW plant is in line with part of SIPs pertaining to Infrastructure (which includes bulk water and reticulation).			

15. What will the benefits be to society in general and to the local communities?	Please explain
Following water and sanitation problems within the Mopani District Municipality, the Minister of Water and Sanitation gave Lepelle Northern Water a directive in terms of Section 41(1)(ii) of the Water Services Act, Act 108 of 1997 to intervene on the Giyani water and waste water treatment works and associated infrastructure in order to restore water supply to the residents. The proposed upgrade will improve waste water treatment in the area, which is currently very constrained and which has led to uncontrolled discharges in the past.	
16. Any other need and desirability considerations related to the proposed activity?	Please explain
In future the WWTW would be further upgrade to improve treatment efficiency.	
17. How does the project fit into the National Development Plan for 2030?	Please explain
The National Development Plan (NDP) for 2030 identifies the task of improving the quality of public services as critical to achieving transformation. This will require provinces to focus on identifying and overcoming the obstacles to achieving improved outcomes, including the need to strengthen the ability of local government to fulfil its developmental role. The WWTW upgrade will improve basic services (water supply and sanitation) in the area and thus the project fits into the National Development Plan as well as the National Infrastructure Plans.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
The facility will be located at the existing Giyani WWTW facility, thus the development will minimise green field development impacts. The proposed upgrade would also have a positive environmental impact and improve the duty of care to the environment by reducing the changes of uncontrolled discharges into watercourses.	
19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.	
The facility will be located at the existing Giyani WWTW facility, thus the development will minimise green field development impacts. The proposed upgrade would also have a positive environmental impact and improve the duty of care to the environment by reducing the changes of uncontrolled discharges into watercourses.	

11. 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	Applicability to the project	Administering authority	Date
National Environmental Management Biodiversity Act, 10 of 2004.	Protected vegetation species require permits prior to their destruction or relocation. No Protected species were found on site.	Department of Agriculture, Forestry and Fisheries (DAFF) and National Department of Environmental Affairs (DEA)	
National Environmental Management Act 107 of 1998		DEA	1998; 04 December 2014.
National Water Act No 36 of 1998):	Activities that may have a detrimental impact on watercourses require a registration or licencing from DWS	National Department of Water and Sanitation DWS	1998.
Integrated Environmental Management (IEM). IEM is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development.	The design and operation of the WWTW should include IEM to ensure the project is operated sustainably, in line with the principals of IEM and continual improvement.	DEA.	1992.
National Heritage Resources Act, 1999, (Act No. 25 of 1999).	A heritage impact assessment has been undertaken and the South African Heritage Resources Authority has been notified of the proposed development as a key commenting authority. No heritage resources were found on site	South African Heritage Resources Agency (SAHRA).	28 April 1999.
Limpopo Provincial Growth and Development Strategy (PGDS): The Limpopo PGDS supports the further development of basic services infrastructure such as water supply and improved sanitation.	The proposed development of three new bulk water reservoirs is in line with the national and provincial development strategy and plans.	Limpopo Provincial Government.	2015 – 2020.

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

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?	Approx. 1000m^3 from demolitions. (from decommissioning existing aeration and treatment plants) quantities are unknown at this stage,

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

All demolition waste will be disposed of at a suitably licensed facility. Existing sewage sludge, from the sludge beds will be disposed of according the waste classification and management regulations (GNR634).

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

At the nearest suitably licensed facility, unless the construction waste can be reused during construction as fill material. Sludge will be disposed of according the waste classification undertaken for the sewage sludge.

Will the activity produce solid waste during its operational phase?	YES
If YES, what estimated quantity will be produced per month?	~100kg per day from staff and one waste skip of sewage sludge periodically

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

During operation dewatered Sewage sludge will be collected in a waste skip and disposed of as per the waste classification and management regulations (GNR634).

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

The appointed contractor would have to determine the most feasible site, based on distance and waste classification.

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

Waste, specifically sewage sludge must be disposed of at a suitably licensed facility.

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, then the applicant 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 NEM:WA?	YES Sewage sludge is considered hazardous, unless declassified

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

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?	

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:

The proposed facility is for the treatment of waste water. The WWTW will use reverse activated sludge, thus a small portion of the waste water will be reused in order to facilitate the anaerobic treatment process.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	
If YES, is it controlled by any legislation of any sphere of government?		NO

If YES, the applicant must 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:

Emissions associated with WWTW include odour (mainly hydrogen Sulphide and methane), and microbial aerosols, however these emissions are not governed by NEMAQA regulations.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?	NO, Waste sludge will be dewatered and disposed of in a waste skip, for removal by a 3rd party contractor. Thus no sludge waste disposal will take place on site.

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

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

Describe the noise in terms of type and level:

Typical operational noise will be generated from aeration ponds and other operational infrastructure, due to the larger size of the aeration and treatment infrastructure, negligible increase above the current is baseline noise levels are expected.

13. WATER USE

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

Municipal	

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 authorisation (general authorisation or water use license) from the Department of Water Affairs?	NO, since the proposed activity is for the upgrade a WWTW and the applicant is

DWS - Refer to Appendix J

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

14. ENERGY EFFICIENCY

Describe the design measures, if any, which have been taken to ensure that the activity is energy efficient:

At present the facility does not include any such measures.

Describe how alternative energy sources have been taken into account or been built into the design of the activity, if any:

Not applicable, however the WWTW will have a standby generator to deal with power outages.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

Section B Copy No. (e.g. A):

2. Paragraphs 1 - 6 below must be completed for each alternative.

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

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Limpopo
District Municipality	Mopani District Municipality
Local Municipality	Greater Giyani Local Municipality
Ward Number(s)	11
Farm name and number	The facility is located within the Farm Greater Giyani 891.
Portion number	None
SG Code	The property portion is not surveyed, Parent farm: T0LT00000000089100000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Tribal land with interspersed rural settlements.

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required? NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat

Alternative S2 (if any):

Alternative S3 (if any):

The study site is situated in a flat area at the location of the existing WWTW. The elevation on site varies from 450 to 455 m above sea level. This is a 5 m change in elevation over a distance of over 400 m.

2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau		2.5 Open valley	X	2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

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.

4. GROUNDCOVER

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

		Veld dominated by alien species[E]	

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.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River		NO	
Non-Perennial River	YES		
Permanent Wetland	YES		
Seasonal Wetland		NO	
Artificial Wetland	YES		
Estuarine / Lagoonal wetland		NO	

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

The site is located within Luvuvhu and Letaba Water Management Area (WMA) on the banks of the Klein Letaba River and falls within Quaternary Catchment B82G. The entire study area and its immediate surroundings are indicated as Lowveld Rugged Mopaneveld, a vegetation type included in the Mopane Bioregion. The Lowveld Rugged Mopane veld vegetation type classified as Vulnerable due to transformation mainly by cultivation and settlement development. However, 17% of the vegetation are conversed in statutory protected areas such as Kruger National Park and in Hans Merensky Nature Reserve. The study area does not overlap with any listed Threatened Ecosystem areas according to the 2011 Schedule (Government Gazette of December 2011) of the Biodiversity Act (Act 10 of 2004). However, the Limpopo Conservation Plan version 2 (LCPv2) indicated that a large portion of the 500 m buffer is located in a Critical Biodiversity Area 1 (CBA1) and also include an Ecological Support Area 2 (ESA2) and Critical Biodiversity 2 (CBA 2).

The planned WWTW expansion is not expected to impact directly on any wetland or riparian watercourse. However, the proposed plans to convert the existing ponds into emergency overflow ponds have the potential to encroach into the seep wetland and riparian habitat along the Klein Letaba River should the existing dams increase in size.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

[redacted]
Dam or reservoir
Informal residential[A]
River, stream or wetland
Sewage treatment plant[A]
[redacted]

If any of the boxes marked with an "[N] "are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

[redacted]

If any of the boxes marked with an "An" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

The proposed activity is for the upgrading of the existing WWTW. As an existing facility, the air quality impacts of odour, noise and microbial aerosols are pre-existing.

In terms of the proposed impact on other land users, the air quality impacts of odour, noise and microbes are not ideal, however the need for the project and the existing site location make alternative sites unsuitable.

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

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 paleontological sites, on or close (within 20m) to the site? If YES, explain:	NO

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) 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 provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

The specialist heritage assessment undertaken for the site did not identify any heritage features.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The 2014 IDP indicated that in 2011, 31636 persons or 60.4% of the Population was unemployed. The major employment sector in the region is agriculture.

Economic profile of local municipality:

Percentage of people earning no income decreased from 82.34% in 1996 to 78.04% in 2001. The percentage of people earning less than ZAR400 per month increased from 5764 in 1996 to 18631 in 2001. The Agricultural sector employs the greatest number of people, but with lower wages.

Level of education:

According to the 2014 IDP, There is a challenge with schools in rural areas, since many are dilapidated with no proper sanitation and water. For the Klein Letaba region there are a total 9537 primary school leaners, with 7420 secondary school learners.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 180 Million
What is the expected yearly income that will be generated by or as a result of the activity?	Not applicable
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	100 employees
What is the expected value of the employment opportunities during the development and construction phase?	R 12 Million
What percentage of this will accrue to previously disadvantaged individuals?	50%
How many permanent new employment opportunities will be created during the operational phase of the activity?	20
What is the expected current value of the employment opportunities during the first 10 years?	R 48 000 000
What percentage of this will accrue to previously disadvantaged individuals?	50%

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult http://bgis.sanbi.org

or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

a) Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)

Systematic Biodiversity Planning Category		**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	[redacted]	Required to meet conservation targets at a regional level

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	[redacted]	
Near Natural (includes areas with low to moderate level of alien invasive plants)		
Degraded (includes areas heavily invaded by alien plants)	50	The existing WWTW site has been in operation for many years and invasive vegetation dominates the site.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	50	The existing WWTW site has been in operation for many years and invasive vegetation dominates the site.

c) Complete the table to indicate:

(i) the type of vegetation, including its ecosystem status, present on the site; and

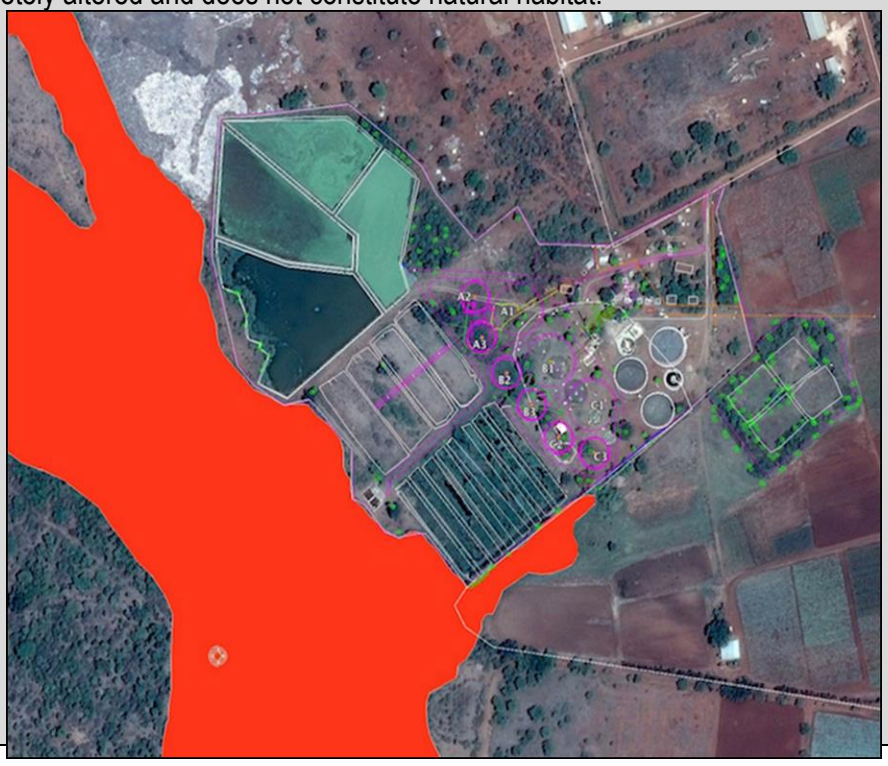
(ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		**Aquatic Ecosystems**					
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	[redacted]	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)		Estuary		Coastline	
	Least Threatened	YES	[redacted]	NO	[redacted]		NO

d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Based on the Specialist Wetland Delineation, the site is located within quaternary Catchment B82G, has a Moderate conservation status and a Moderately Modified condition (Class C) Present Ecological State (PES). There are no listed or protected species that are likely to be affected by the proposed project. It was established that no listed animal or plant species are likely to be affected by the proposed project.

The project is located within areas defined in the Provincial Conservation Plan as CBA1 (Critical Biodiversity Area) and ESA2 (Ecological Support Area). The Conservation Plan has identified the CBA1 areas as being required to meet conservation targets at a regional level. However, the habitat on site is completely altered and does not constitute natural habitat.



SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Zoutpansberger, Sowetan	
Date published	22 January 2016, 22 January 2016	
Site notice position	**Latitude**	**Longitude**
Site Notice 1	23.32408°S	30.70950°E
Site Notice 2	23.33337°S	30.71102°E
Site Notice 3	23.30910°S	30.709941°E
Date placed	22nd of January 2016	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	**Affiliation/ key stakeholder status**	**Contact details (tel number or e-mail address)**
Ms. Noza Baloyi	Community Liaison Officers - Identified as part of the greater bulk water supply project	078 199 6727; baloyiml@greatergiyani.gov.za
Ms. Sizaphe Nelson Khosa	Community Liaison Officers - Identified as part of the greater bulk water supply project	083 426 9904;
Mr. Vukosi	Community Liaison Officers - Identified as part of the greater bulk water supply project	073 8115280; vukosishimange@gmail.com
Mr. Nkuna D	Community Liaison Officers - Identified as part of the greater bulk water supply project	071 815 2011;
Mr. Makito Mphahlele	Community Liaison Officers - Identified as part of the greater bulk water supply project	083 946 5469; mkhapali@yahoo.com
Mr. Vumbhoni Dorcad	Community Liaison Officers - Pipeline F2	073 016 4210;
Ms. Koopedi OR	Man'ombe Nature Reserve	082 377 3742 / koopedior@ledet.gov.za 071 673 9843;
Mr. Mabule Mokhine	Earthlife Africa Branch coordinator - Johannesburg office	011 339 3662 mabule@ghouse.org.za/ juliette@ghouse.org.za
Ms. Makoma Lekalakala	SECCP of Earthlife Africa Senior Programme officer	011 339 3662 makoma@earthlife.org.za

Mr. Daniel Marnewick	Birdlife South Africa Important Bird Areas Programme	011 789 1122 / 082 772 4432 iba@birdlife.org.za
Dr. Shadrack Moephuli	Agricultural Research Council CEO	012 427 9700 enquiry@arc.agric.za
Mr. Constant Hoogstad	Endangered Wildlife Trust Manager for the WEP	011 372 3600 constanth@ewt.org.za / wep@ewt.org.za
Mr. John Geeringh	Eskom Senior Environmental Advisor Eskom GC - Land Development	011 800 2465 john.geeringh@eskom.co.za
Ms. Lungile Motsisi	Eskom Servitude and Investigations Department	011 800 8111 motsisl@eskom.co.za
Ms. Lizelle Stroh	South African Civil Aviation Authority	011 545 1232/ 083 461 6660 strohl@caa.co.za
Ms. Mphati Makoa	SANRAL - Northern Region	012 426 6200 makoam@nra.co.za
Ms. Claire Herbst	WESSA (Wildlife and Environment Society of South Africa) Projects	011 462 5663 / 079 790 4989 claire.herbst@wessa.co.za
Mr. Eddie Seaton	Transnet Transnet Property	011 308 2417 eddie.seaton@transnet.net
Dr. Vela Mngwengwe	National Department of Rural Development and Land Reform Chief Director: State Land Administration	012 312 9862 / 082 577 5534 vela.mngwengwe@drdlr.gov.za / DGOffice@drdlr.gov.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Mr. Lucas phoned EIMS asking for more details regarding received notification (during the site notice placement visit). Lucas occupies land near the Waste Water Treatment Works (WWTW) proposed site location Mr. Lucas wanted to know	EIMS clarified that this proposed development consists of upgrading of the existing Giyani WWTW, Development will only occur within the vicinity of the proposed project footprint. In addition, EIMS informed Lucas that should he

if their properties will be affected, for example, if they will build some components of the WWTW on other surrounding properties.	have any further comments/concerns, he can contact EIMS at the details provided in the notice.
Dr. Vela Mngwengwe forwarded the notice to Mr Julius Mashaphu asking him to determine if the development is not going to impact on any occupant, if any.	EIMS sent a follow up email to Mr. Julius Mashaphu from the DRDLR to seek advice regarding Mr. Vele Mngwengwe's request.
Mr. Eddie Seaton forwarded the initial notification for this project to Mr. Andre Bodenstein to enquire if Transnet property in Limpopo is affected by this proposed project.	This was noted by EIMS.
Mr. Andre Bodenstein informed EIMS that Transnet is not affected.	EIMS thanked Mr. Bodenstein for his response and let him know that his comment is duly noted.
Ms. Lizelle Stroh responded to the notice by indicating that the EAP/Applicant follow the SACAA procedures in providing consent and or comment to the proposed development.	EIMS thanked Ms. Stroh for the response and indicated that they will provide her with the required information.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR 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 the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Mopani District Municipality Municipal Manager	Cllr.N A Ngoepe	015 811 6300/ 6320	015 812 4302		Private Bag X9687 Giyani 0826

Mopani District Municipality Executive Mayor	Cllr.Leswafo J oshua Matlou	015 811 6300/	015 812 4302	tim@mopani.g ov.za /	Private Bag X9687 Giyani 0826
Mopani District Municipality Speaker	Cllr.NV Mathonsi	015 811 6300/ 083 384 3388	015 812 4302		Private Bag X9687 Giyani 0826
Greater Giyani Local Municipality Municipal Manager	Cllr. C Chaamano	015 811 5500/ 5542	015 812 2068	khumbuzaa@g reatergiyani.go v.za	Private Bag X9559 Giyani 0826
Greater Giyani Local Municipality Executive Mayor	Cllr.Pat Hlungwani	015 811 5500	015 812 2068		Private Bag X9559 Giyani 0826
Greater Giyani Local Municipality Speaker	Cllr.S S Mathebela	015 811 5500	015 812 2068		Private Bag X9559 Giyani 0826
Greater Giyani Local Municipality Ward 11 Councillor	Cllr.Yvonne P Matukane	084 505 4283	015 812 2068	ymatukane@g mail.com	P.O. Box 285 Giyani 0826
Greater Giyani Local Municipality Ward 13 Councillor	Cllr.Khazamula Abraham Manganyi	083 686 6255	015 812 2068	akhazamula@ webmail.co.za	P.O. Box 5268 Giyani 0826
Greater Giyani Local Municipality Ward 9 Councillor	Cllr.Jackson Masenyani Makhubela	072 308 6251	015 812 2068		P.O. Box 546 Giyani 0826
National Department of Mineral Resources Director General	Mr. Khayalethu Matrose	012 444 3231 / 3308/ 3880	086 214 5509	khayalethu.mat rose@dmr.gov .za/ nwabisa.qwan yashe@dmr.go v.za	Private Bag X59 Arcadia 0007
National Department of Provincial and Local Government Chief Director Communications	Mr. Radithoana Selepe	012 334 0740	012 334 0703	sol@cogta.gov .za	Private Bag X804 Pretoria 0001
National Department of Agriculture, Forestry and Fisheries Agriland Land Liason	Ms. Thoko Buthelezi	012 319 7634	012 329 5938	thokob@daff.g ov.za	Private Bag X120 Pretoria 0001
National Department of Rural Development	Mr.Gugile Nkwinti	012 312 9300 /5/ 021 461	012 323 3306	nomava.notsh e@drdlr.gov.za /	Private Bag X833 Pretoria 0001

and Land Reform Minister		1301		gugile.nkwinti @drdlr.gov.za	
National Department of Rural Development and Land Reform Chief Director: State Land Administration	Adv. Vela Mngwengwe	012 312 9862 / 082 577 5534	012 326 9213	vela.mngwengwe@drdlr.gov.za	Private Bag X833 Pretoria 0001
National Department of Rural Development and Land Reform Director General	Mr. Mduduzi Shabane	012 312 8503		DGOffice@drdlr.gov.za	Private Bag X833 Pretoria 0001
National Department of Water and Sanitation Assistant Director Administration	Mr. Lincoln Seoloane	012 336 7179	012 336 7871	seoloanel@dwa.gov.za	Private Bax X313 Pretoria 0001
South Africa Local Government Association (SALGA)	Mrs. I. Chauke	012 369 8000	012 369 8001	ichauke@salga.org.za	P. O. Box 2094 Pretoria 0001
National Department of Transport Acting Director	Mr. Sam Monareng	012 309 3000	012 309 3313	MonarenA@dot.gov.za	Private Bag X193 Pretoria 0001
South African Heritage Resources Agency (SAHRA) - National Chief Executive Officer	Mr. Veliswa Baduza	021 462 4502	021 462 4509	info@sahra.org.za / nhewana@sahra.org.za	P. O. Box 4637 Cape Town 8000
Limpopo Department of Rural Development and Land Reform Chief Director	Mr. Julius Mashaphu	015 297 3539	015 297 4988	Julius.Mashaphu@drdlr.gov.za	P.O Box 9312 Polokwane 0700
Limpopo Department of Rural Development and Land Reform Acting Director - Property Management	Mr. Tinyiko Makamu		015 297 4988	tinyiko.makamu@drdlr.gov.za	P.O Box 9312 Polokwane 0700
Limpopo Department of	Mr. Malegodi Mahl	082 808 5825		MahlatjiM@dwa.gov.za	Private Bag X9506 Polokwane

Water and Sanitation	atji				0700
Limpopo Department of Public Works, Roads and Infrastructure Head of Department (Acting)	Ms. Kate Machaba	015 284 7582/7115	015 284 7040 / 015 293 9350	lutchmanf@dpw.limpopo.gov.za	Private Bag X9490 Polokwane 0700
Limpopo Deparment of Roads and Transport Head of Department	Ms. Henlie du Plessis	015 295 1006	015 294 8006	lmathaleng@drt.limpopo.gov.za	Private Bag X9491 Polokwane 0700
Limpopo Department of Agriculture PA to SM: Agricultural Engineering	Ms. Dikeledi Felicia Malatji	015 294 3366	015 294 4544 / 086 597 6386	malatjidf@agric.limpopo.gov.za	Private Bag X9487 Polokwane 0700
Limpopo Department of Mineral Resources Regional Manager	Mr. AK Karivhe	015 287 4736	015 287 4729	Aaron.Kharivhe@dmr.gov.za	Private Bag X9467 Polokwane 0700
Limpopo Department of Economic Development, Environment and Tourism Head of Department	Ms. Maylene Broderick	015 295 8648	015 293 8821	broderickms@ledet.gov.za	Private Bag X9484 Polokwane 0700
Limpopo Department of Co-operate Governance, Human Settlements and Traditional Affairs	Mr. Motupa Evans Selumo	015 294 5082	015 291 5068	selomome@coghsta.limpopo.gov.za	Private Bag X9485 Polokwane 0700
Limpopo Department of Health and Social Development Head of Department	Dr. Daisy Mafebu	015 293 6027	015 293 6170	nelbonia.legodi@dhsd.limpopo.gov.za	Private Bag X9302 Polokwane 0700

Limpopo Department of Land Resitution Support Chief Director	Mr. Tele Maphoto	015 287 0800	015 287 0811	tele.maphoto@drdlr.gov.za	Private Bag X9552 Polokwane 0700
National Department of Rural Development and Land Reform Chief Director: State Land Administration	Dr. Vela Mngwengwe	012 312 9862 / 082 577 5534	012 326 9213	vela.mngwengwe@drdlr.gov.za / DGOffice@drdlr.gov.za	Private Bag X833 Pretoria 0001

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 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. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A(2) of this report.

Activity	Impact summary	Significance	Proposed mitigation
PREFERRED ALTERNATIVE			
CONSTRUCTION			
Impact on soils from construction activities (Direct Impact)	Construction activities may impact on soil quality through pollution and improper stockpiling methods.	**LOW**	• Refer to the EMPr for detailed recommendation measures • Develop and implement a rehabilitation plan that can be implemented during the latter stage of the construction phase. • Soil stockpiles may not exceed 1.5m in height and a slope greater than 1:2.
Impact on surface and ground water resources from construction activities (Direct Impact)	Construction activities may impact on surface water features through improper use and storage of chemicals required for construction	**MEDIUM**	• Refer to the EMPr for detailed recommendation measures • Material from existing infrastructure that is demolished to make space for infrastructure associated with the proposed upgrade should not be stored (stockpiled) within the 32 or 10 m buffers. • Stockpiles and designated areas used for refuelling during the construction phase should not be located within the 32 m and 10 m buffers from watercourses.
Impact on Soil and water from solid waste disposal and management (Direct Impact)	Construction activities will generate solid waste which if not managed responsibly would impact on environmental aspects.	**LOW**	• Refer to the EMPr for detailed recommendation measures • All waste storage and disposal areas must be located further than 100m from the nearest watercourses to prevent accidental spills and pollution.
OPERATION			
Potential surface water pollution	The WWTW process can potentially impact on surface	MEDIUM	• Sewage sludge will be dewatered by a mechanical press, and disposed of into a

Activity	Impact summary	Significance	Proposed mitigation
Direct Impact) (Cumulative Impact)	water features through uncontrolled discharges or ground water leaching into the shallow water table. These discharges have the potential to severely impact on water quality, resulting in the water resources becoming unfit to human use.		waste skip for disposal at a legally licenced user. • The water quality of all storm water retention in ponds 1 to 5 must be analysed prior to discharge into the environment, since the previous settling pond's residual sludge may impact on the stormwater quality. • Untreated stormwater may only be discharged if it meets the relevant DWS standards. • If storm water quality trends indicate that residual sludge in the ponds do not pose a water quality impact, the discharge monitoring may be undertaken on a less frequent basis, provided trending data can support this assumption. • Develop and implement a monitoring programme on the boundaries of the seep wetland and the riparian zone with the WWTW to detect sewage spills and grey water leakage, as well as erosion in these two natural watercourses due to spills/leakage • It is recommended that baseline aquatic ecological data should be collected for the Klein Letaba River prior to the start of construction activities. This information can then be used for future monitoring purposes to provide a reference for the ecological condition of the river prior to the start of the proposed upgrade works. This information would be required to develop and implement a water quality monitoring programme within the Klein Letaba River, with sample points upstream and downstream WWTW to detect water pollution changes and possible causes by the upgraded WWTW. • Monitoring should also evaluate the water quality of the final effluent prior to release, in order to ensure that it continues to meet DWS effluent discharge Standards • Direct stormwater discharge into the natural watercourses should be avoided as far as possible, while energy dissipating measures should be used to spread out flows at outlets, in order to restrict scour erosion and habitat

Activity	Impact summary	Significance	Proposed mitigation
			degradation. • Where unavoidable or potential erosion features along flow paths to the river are expected or recorded, they should be stabilised (e.g. with channel armour, weirs or drop inlets) and incorporated into a stormwater management plan for the WWTW. • Channelization in the wetland and other watercourses for stormwater release should be avoided. No drains or channels should therefore be created within the seep wetland. • Gravel infill in the seep wetland can be covered with topsoil obtained from the construction activities and revegetated with suitable wetland species. Mulching and brush packing are also recommended. Affected areas should be fenced off for at least 2 growing seasons to prevent trampling by livestock. • Dams that partially overlap with the 32 m and 100 m buffer zones should be lined to help restrict seepage of low water quality into the natural watercourses. • Release points at these dams should have energy dissipating measures that will help to prevent erosion in the wetlands and channel banks of the Klein Letaba River. • Any proposed upgrade works to the existing ponds (dams) to convert them into emergency overflow dams should be restricted to the existing footprints of the existing dams as far as possible to prevent the loss of additional watercourse.
Potential ground water pollution Direct Impact) (Cumulative Impact)	The storage of effluent in evaporation or settling ponds have the potential to affect the shallow water table, if the ponds are not lined to prevent leaching.	**LOW**	• The proposed upgrade will utilise a filter press to dewater sludge, and thus not require large dewatering beds for sludge treatment. Should the beds be used for dewatering, they must be lined as required by relevant DWS guidelines. • Effluent from the dewatering process must be contained and will be treated to meet the relevant discharge standards prior to release into the environment.
Odour and Noise	The proposed upgrade will	LOW	• The facility should as a minimum comply with

Activity	Impact summary	Significance	Proposed mitigation
nuisance on residents (Direct Impact) (Cumulative Impact)	increase current noise and odour levels of the WWTW. It is anticipated that these increase will be not be significant over the current status quo.		the relevant noise standards for industrial areas. However since the facility has not been zoned a WWTW (industrial), it is possible that the industrial noise level standard is not strict enough for the facility due to the close proximity to residences. • The noise level standard (lined to landuse and zoning) should be confirmed and approved by the local municipality.
Microbial aerosol health impacts Direct Impact) (Cumulative Impact)	Wind can spread aerosolised microbial pathogens (such a viruses and bacteria) from the aeration ponds. This has the potential to negatively impact on the surrounding air quality through the spread of infectious diseases, both to adjacent watercourses and residents	MEDIUM	• Alternative technologies should be investigated in future to reduce airborne pathogens. • Annual investigations should be undertaken to attempt to systemically improve air emission impacts on residents.
Erosion impacts (Direct Impact)	Uncontrolled discharges of high rainfall event / stormwater could increase soil erosion.	LOW	• It is proposed that the existing settling ponds will be decommissioned for that purpose and be utilised as storm water retention ponds. • Pond 1 will be the main storage unit for stormwater and will contain 24 hour of continuous peak storm water inflow; therefore sufficient for almost any occurrence. Ponds 2 to 5 will not be drained, but will provide additional buffer capacity.
Sewerage sludge disposal &storage Direct Impact) (Cumulative Impact)	Sewage sludge (whether wet or dry) has the potential to contain hazardous substances, such as heavy metals and microbial pathogens. Sewage sludge therefor has the potential to impact on surface and ground water resources, if the resultant pollutants are allowed to enter watercourses (i.e. if a vector for pollution is created). Excess activated sludge will be drawn off from the biological reactors of Modules 1 and 2 and pumped in an unthickened state to the Volute™ sludge drying press to receive a coagulant before being dried	MEDIUM	• The dried sludge shall be deposited in a waste skip for removal to a sludge storage site and not be stored for longer than 30 days. • All maturation and drying ponds shall be lined by a suitable clay or HDPE liner to reduce the impact on ground water resources, since the site contains shallow ground water levels. • The dried sludge will be regularly classified as per regulations and disposed of in a way permissible according to its most recent classification. Classification must be undertaken on an annual basis, or where there is reason to believe that the nature of the sludge has changed significantly from the previous classification.
Increase in the treated effluent quality (Positive impact) (Cumulative Impact)	The current WWTW cannot comply with the discharge standard should the bulk supply increase in the area. The proposed upgrade would thus be able to treat increased quantity of effluent and utilise a more advanced treatment process than the current plant, resulting in improved effluent water quality and decrease the	**POSITIVE**	• The design of the upgrade will make provision for more advanced treatment technologies. Thus this is a positive impact and therefore does not require mitigation.

Activity	Impact summary	Significance	Proposed mitigation
	chances of unintentional discharges		
Other water user rights Direct Impact) (Cumulative Impact)	The WWTW would not affect other downstream water user's abstraction right, since the WWTW facility is directly linked to the effluent inflows from the bulk supply network and will not utilise any raw water. If the effluent meets discharge standards, the increase in the WWTW treatment capacity should not significantly impact on other users rights. However should the increase in effluent not meet the required standards, there is a potential to significantly impact on other users rights, due to a decrease in water quality, which may make the water unsuitable for the respective required uses, such as irrigation, livestock watering or recreational use.	**LOW**	• No mitigation is possible. Although the impact on water user's right would increase above the status quo due to improved water quality, the increased water use and discharge of the proposed WWTW would decrease overall water quantity and quality available to users when combined with the proposed bulk water supply upgrade project.
NO-GO OPTION			
Construction			
Impact on soils from construction activities (Direct Impact)	This impact has taken place in the No-Go due to an existing WWTW.	**N/A**	• **N/A**
Impact on surface and ground water resources from construction activities (Direct Impact)	This impact has taken place in the No-Go due to an existing WWTW.	**N/A**	• **N/A**
Impact on Soil and water from solid waste disposal and management (Direct Impact)	This impact has taken place in the No-Go due to an existing WWTW.	**N/A**	• **N/A**
Operation			•
Potential surface water pollution Direct Impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• Sewage sludge will be dewatered by a mechanical press, and disposed of into a waste skip for disposal at a certified site. • The water quality of all storm water retention in ponds 1 to 5 must be analysed prior to discharge into the environment, since the settling pond's residual sludge may impact on the stormwater quality. Untreated stormwater may only be discharged if it meets the relevant DWS standards.

Activity	Impact summary	Significance	Proposed mitigation
			• If storm water quality trends indicate that residual sludge in the ponds do not pose a water quality impact, the discharge monitoring may be undertaken on a less frequent basis, provided trending data can support this assumption. • The presence of the river in adjacent areas along with riparian habitat associated with the river must not be disturbed by activities associated with upgrading of infrastructure on site.
Potential ground water pollution Direct Impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• The proposed upgrade will utilise a filter press to dewater sludge, and thus not require large dewatering beds for sludge treatment. Should the beds be used or dewatering they must be lined as required by relevant DWS guidelines and a WULA may be required. • Effluent from the dewatering process must be contained and will be treated to meet the relevant discharge standards prior to release into the environment.
Odour and Noise nuisance (Direct Impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• The facility should as a minimum comply with the relevant noise standards for industrial areas. However since the facility has not been zoned a WWTW (industrial), it is possible that the industrial noise level standard is not strict enough for the facility due to the close proximity to residences. • The noise level standard (landuse and zoning) should be confirmed and approved by the local municipality.
Microbial aerosol health impacts Direct Impact) (Cumulative Impact)	This impact is an existing This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• Alternative technologies should be investigated in future to reduce airborne pathogens. • Annual investigations should be undertaken to attempt to systemically improve air emission impacts.
Erosion impacts (Direct Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• The existing settling ponds will be decommissioned for that purpose and be utilised as storm water retention ponds. • Pond 1 will be the main storage unit for stormwater and will contain 24 hour of continuous peak storm water inflow; therefore sufficient for almost any occurrence. Ponds 2 to 5 will not be drained, but will provide additional buffer capacity.

Activity	Impact summary	Significance	Proposed mitigation
Sewerage sludge disposal &storage Direct Impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• The dried sludge shall be deposited in a waste skip for removal to a sludge storage site and not be stored for longer than 30days. • All maturation and drying ponds shall be lined by a suitable clay or HDPE liner to reduce the impact on ground water resources, since the site contains shallow ground water levels. • The dried sludge will be regularly classified as per Waste Classification Regulations (GNR634) and disposed of in a way permissible according to its most recent classification. Classification must be undertaken on an annual basis, or where there is reason to believe that the nature of the sludge has changed significantly from the previous classification.
Sense of place impact (Direct Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will not alter this pre-existing impact	**NONE**	• Since the facility is an existing impact, no mitigation is proposed, since the impact is not considered significant.
Landuse change (Direct Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will not alter this pre-existing impact	**NONE**	• No landuse change would take place, since the WWTW is an existing facility.
Increase in the treated effluent quality (Positive impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• The design of the upgrade will make provision for more advance treatment technologies. Thus is a positive impact and therefore does not require mitigation.
Other water user rights Direct Impact) (Cumulative Impact)	This impact is an existing impact since the existing WWTW is operational. The proposed upgrade will thus improve the No-go impact	**POSITIVE**	• Improved water treatment and water quality would improve access to water resources.

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity and its alternatives may have on the environment <u>after</u> 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 A (preferred alternative)

Please refer to Appendix F for the calculation details of all the identified impacts. In terms of the summary table below, it is evident that the current status quo is not desirable (-91), since the WWTW is operating under capacity. It is evident that the proposed WWTW would significantly improve the status quo (-55.75), when all the EMPr mitigation measures are implemented.

In terms of the anticipated impacts, the potential to pollute ground and surface water resources are scored as a medium significance. This is largely due to the sensitive nature of the wetland and the wetland area is thus susceptible to uncontrolled or unintentional effluent discharges into the watercourse.

Overall the impact associated with the proposed upgrade is Low after mitigation measures have been applied and when the positive impact of improved effluent quality is considered, the project would have a positive impact on the current status quo once the facility is operational.

Impact	Alternative	Phase	BaseLine Score	Pre-mitigation ER	Post-mitigation ER
Impact on soils from construction activities	Proposal	Construction	0	-3.5	-3.5
Impact on surface and ground water resources from constru	Proposal	Construction	0	-11	-11
Impact on Soil and water from solid waste disposal and mana	Proposal	Construction	0	-4	-4
Potential surface water pollution	Proposal	Operation	-20	-15	-9.75
Potential ground water pollution	Proposal	Operation	-11	-9	-9
Odour and Noise nuisance	Proposal	Operation	-9	-11	-5
Microbial aerosol health impacts	Proposal	Operation	-15	-11	-11
Erosion impacts	Proposal	Operation	-8	-8	-4
Sewerage sludge disposal &storage	Proposal	Operation	-20	-15	-9
Increase in WWTW quality and decrease in unintentional disc	Proposal	Operation	0	9	15
Other water user rights	Proposal	Operation	-8	-4.5	-4.5
Impact Score Total			**-91**	**-83**	**-55.75**

Alternative B

[redacted]

Alternative C

[redacted]

No-go alternative (compulsory)

The current no-go alternative is not desirable, since the current WWTW cannot cope with the current effluent quantities. In addition, the upgrade is motivated by the bulk water supply project in the region, which inter alia requires that the WWTW be upgraded to cope with the expected increase in liquid effluent.

SECTION E. 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.

- Ensure soil stockpiles do not exceed 1.5m in height and that slopes are not more than 1:2. Chemical spills must be contained and removed/disposed of as per the hazard rating of the substance.
- Ensure all storage areas are bunded and roofed during construction chemical spills must be contained and removed/disposed of as per the hazard rating of the substance.
- The presence of the river in adjacent areas along with riparian habitat associated with the river. It is important that this riparian zone is not disturbed by activities associated with upgrading of infrastructure on site.
- Ensure all storage areas are bunded during construction waste skips and bins must be emptied regularly and disposed of at a suitable landfill.
- No burning of waste may take place on site.
- Sewage sludge will be dewatered by a mechanical press, and disposed of into a waste skip for disposal at a certified site.
- The water quality of all storm water retention in ponds 1 to 5 must be analysed prior to discharge into the environment, since the previous settling pond's residual sludge may impact on the stormwater quality.
- Untreated stormwater may only be discharged if it meets the relevant DWS standards.
- If storm water quality trends indicate that residual sludge in the ponds do not pose a water quality impact, the discharge monitoring may be undertaken on a less frequent basis, provided trending data can support this assumption.
- Develop and implement monitoring programme on the boundaries of the seep wetland and the riparian zone with the WWTW to detect Sewage spills and grey water leakage, as well as Erosion in these two natural watercourses due to spills/leakage
- It is recommended that baseline aquatic ecological data should be collected for the Klein Letaba River prior to the start of construction activities. This information can then be used for future monitoring purposes to provide a reference for the ecological condition of the river prior to the start of the proposed upgrade works. This information would be required to develop and implement a water quality monitoring programme within the Klein Letaba River, with sample points upstream and downstream WWTW to detect water pollution changes and possible causes by the upgraded WWTW.
- Monitoring should also evaluate the water quality of the final effluent prior to release, in order to ensure that it continues to meet General Standards as specified by Laubscher (2015).
- Direct stormwater discharge into the natural watercourses should be avoided as far as

possible, while energy dissipating measures should be used to spread out flows at outlets, in order to restrict scour erosion and habitat degradation.

- Where unavoidable or potential erosion features along flow paths to the river are expected or recorded, they should be stabilised (e.g. with channel armour, weirs or drop inlets) and incorporated into a stormwater management plan for the WWTW.
- Channelization in the wetland and other watercourses for stormwater release should be avoided. No drains or channels should therefore be created within the seep wetland.
- Gravel infill in the seep wetland can be covered with topsoil obtained from the construction activities and revegetated with suitable wetland species. Mulching and brush packing are also recommended. Affected areas should be fenced off for at least 2 growing seasons to prevent trampling by livestock.
- Dams that partially overlap with the 32 m and 100 m buffer zones should be lined to help restrict seepage of low water quality into the natural watercourses (Figure 8).
- Release points at these dams should have energy dissipating measures that will help to prevent erosion in the wetlands and channel banks of the Klein Letaba River.
- Material from existing infrastructure that is demolished to make space for infrastructure associated with the proposed upagrade development should not be stored (stockpiled) within the 32 or 10 m buffers (Figure 8).
- Stockpiles and designated areas used for refuelling during the construction phase should not be located within the 32 m and 100 m buffers.
- Develop and implement an alien plant control plan based on the evaluation of species present within the study area and in close proximity to infrastructure features. This can form part of a larger rehabilitation plan that can be developed during the latter stage of the construction phase.
- Any proposed upgrade works to the existing ponds (dams) to convert them into emergency overflow dams should be restricted to the existing footprints of the existing dams as far as possible to prevent the loss of additional watercourse habitat.
- All of the proposed development infrastructure should be restricted to existing footprints as far as practically possible.
- The proposed upgrade will utilise a filter press to dewater sludge, and thus not require large dewatering beds for sludge treatment. Should the beds be used or dewatering they must be lined as required by relevant DWS guidelines and a WULA may be required.
- Effluent from the dewatering process must be contained and will be treated to meet the relevant discharge standards prior to release into the environment.
- The facility should as a minimum comply with the relevant noise standards for industrial areas. However since the facility has not been zoned a WWTW (industrial), it is possible that the industrial noise level standard is not strict enough for the facility due to the close proximity to residences.
- The noise level standard (lined to landuse and zoning) should be confirmed and approved by the local municipality.
- Since the facility is already located in close proximity to watercourses and residents, this impact is difficult to mitigate.
- Alternative technologies should be investigated in future to reduce airborne pathogens.

- Annual investigations should be undertaken to attempt to systemically improve air emission impacts on residents.
- It is proposed that the existing settling ponds be decommissioned for that purpose and be utilised as storm water retention ponds.
- Pond 1 will be the main storage unit for stormwater and will contain 24 hour of continuous peak storm water inflow; therefore sufficient for almost any occurrence. Ponds 2 to 5 will not be drained, but will provide additional buffer capacity.
- The dried sludge shall be deposited in a waste skip for removal to a sludge storage site and not be stored for longer than 30days.
- All maturation and drying ponds shall be lined by a suitable clay or HDPE liner to reduce the impact on ground water resources, since the site contains shallow ground water levels.
- The dried sludge will be regularly classified as per regulations and disposed of in a way permissible according to its most recent classification. Classification must be undertaken on an annual basis, or where there is reason to believe that the nature of the sludge has changed significantly from the previous classification.
- Since the facility is an existing impact, no mitigation is proposed, since the impact is not considered significant.
- Suitable future mitigation measures in may include assessing the feasibility of relocating residents to sufficient distance away from the WWTW to reduce odour and aerosol impacts.
- The design of the upgrade will make provision for more advanced treatment technologies. Thus this is a positive impact and therefore does not require mitigation.

Is an EMPr attached? YES

The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Mr Nicus Durieux

_____

NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information