

# ENVIRONMENTAL IMPACT REPORT

## ST PATRICK'S HOSPITAL WASTE WATER TREATMENT WORKS

DEA REF: 12/9/11/L999/1 (Decommissioning of existing ponds)  
DEA REF: 12/9/11/L998/1 (New oxidation ponds)

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Volume 3: Specialist Report

PUBLIC REVIEW

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# 1 INTRODUCTION

## 1.1 Environmental Authorisation

The proposed activity consists of the construction of new oxidation pond and bio-filter as well as the decommissioning of old ponds at St Patrick's Hospital in Bizana, Eastern Cape. This activity requires a Full Scoping and Environmental Impact Assessment (EIA) in accordance with R543 (Section 26-35) for environmental authorisation. The proposed project is a listed activity in terms of Waste Management Activities, Category A and B (Table 1.1):

**Table 1.1: Relevant listed activities in terms of NEM Waste Act activities.**

Number of the relevant notice	Activity No (s) (in terms of the relevant notice)	Listed Activity
718, 2009	A (19)	The expansion of facilities which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of pollution, effluent or waste.
718, 2009	A (20)	Decommissioning of activities in Category A.
718, 2009	B (7)	The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more.
718, 2009	B (11)	The construction of facilities for activities listed in Category B.

## 1.2 Scoping phase

This procedure entails both scoping and EIA. The proponent is therefore initially required to submit a report detailing the scoping phase (Scoping Report), followed by a report detailing the EIA phase (Environmental Impact Report - EIR). The competent authority will issue a decision subsequent to their review of the EIR.

It is important to note however, that in addition to the requirements for an environmental authorisation in terms of NEMA, there may be additional legislative requirements which need to be considered prior to commencing with the activity, for example: the National Water Act (Act 36 of 1998).

National Department of Environmental Affairs (DEA) accepted the Scoping Report on 29 October 2012 and issued a continuation of the EIA process into the Environmental Impact Report (EIR) Phase for further investigation (Figure 1.1).

## 1.3 Environmental Impact Assessment Phase

The EIA process is guided by regulations made in terms of the National Environmental Management Act (NEMA) No. 107 of 1998 as amended in 2010, and published Government Notice No GN R 543 (2010).

The description of tasks to be undertaken for the EIR, as outlined in the Scoping Report and approved by DEA described the criteria and methodology to be used for the impact assessment as follows:

- Public Participation.
- Consultation with stakeholders/I&APs (predominately DWA) regarding possible significance of impacts and suitable mitigation measures.

- Evaluate and summarise findings of **specialist Sewage Treatment Works Impact Assessment** report.
- Investigate and report on alternative materials and methods.
- Evaluation of impacts prior to mitigation.
- Compilation of mitigation measures.
- Evaluation of impacts after mitigation.
- Provide an opinion as to whether or not the activity should be authorised.
- Compilation of an environmental impact statement.

The EIR assesses the impacts of the activity, identified during the scoping phase, against the following criteria:

- Temporal scale
- Spatial Scale
- Risk or likelihood
- Degree of confidence or certainty
- Severity of benefits
- Significance

An integral part of this assessment is the similar assessment of any feasible alternatives.

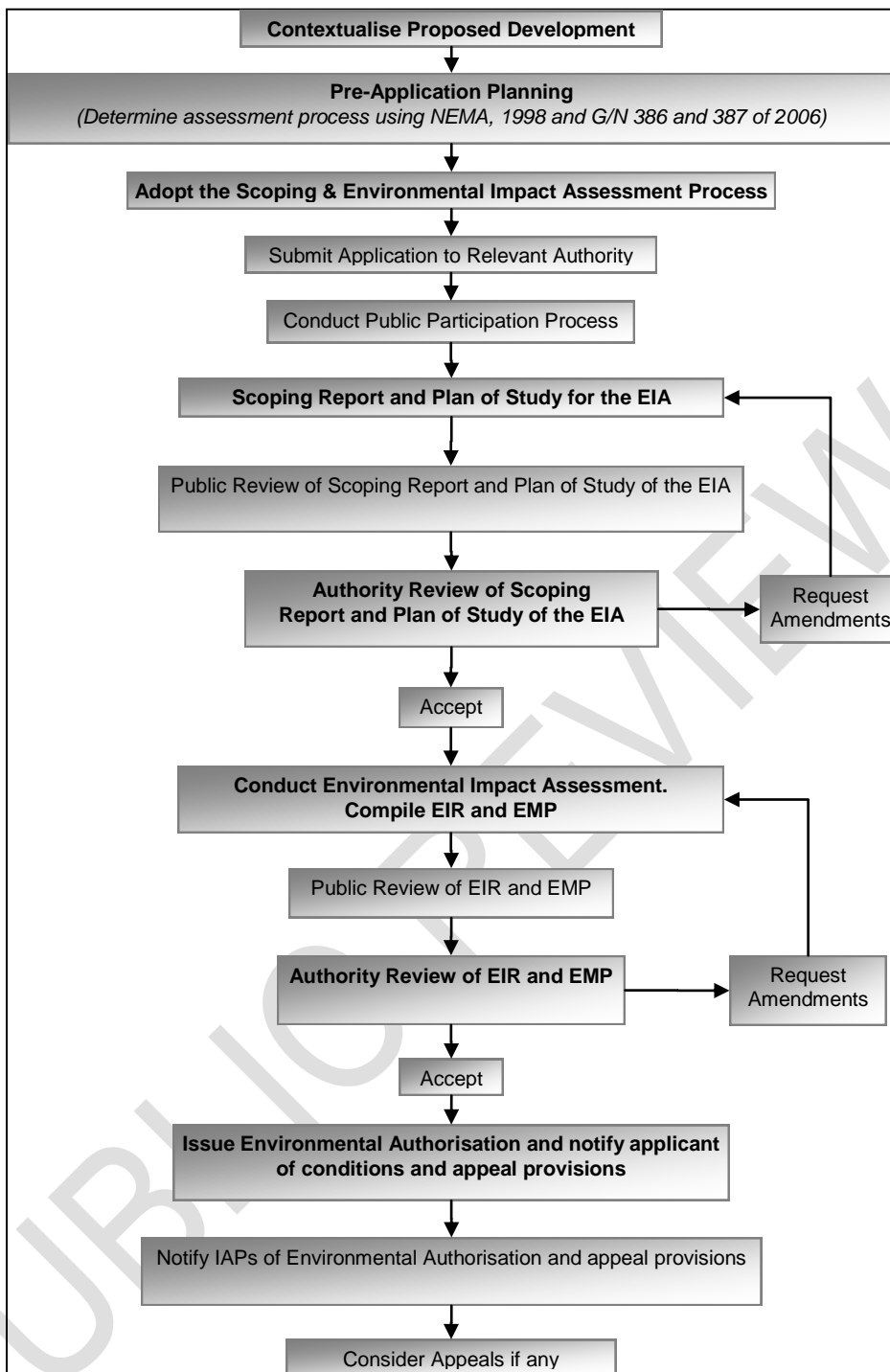


Figure 1.1 The EIA process under current legislation (EIA, 2010).

## 1.4 Details and Expertise of Environmental Assessment Practitioner (EAP)

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

- (a) (i) The Environmental Assessment Practitioner (EAP) who compiled the report; and
- (ii) The expertise of the EAP to carry out an environmental impact assessment.

### 1.4.1 Environmental Consulting Company:

#### Coastal & Environmental Services

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PO Box 8145, Nahoon, East London, 5210  
Tel: (043) 742 3302  
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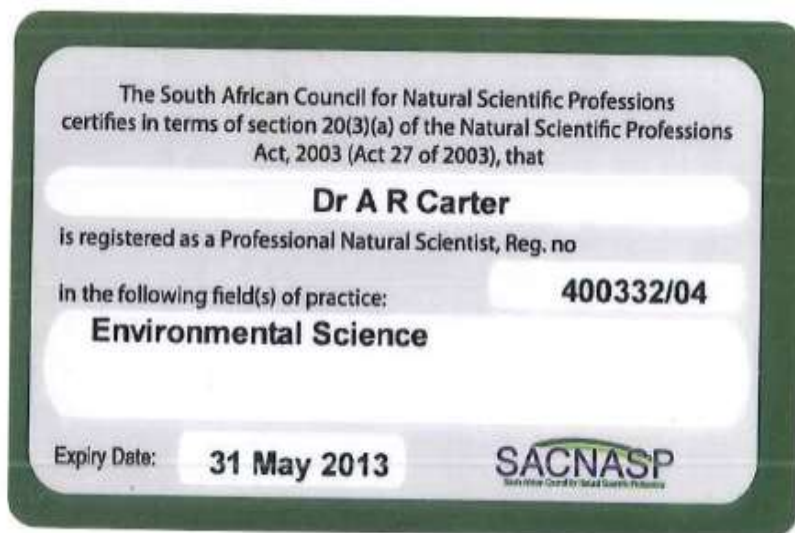
### 1.4.2 Environmental Assessment Practitioners working on this project:

- Dr Alan Carter (PhD Rhodes, CPA USA)
- Dr Greer Hawley (PhD Microbiology, Rhodes)
- Dr Cherie-Lynn Mack (PhD Biotechnology, Rhodes)
- Mr Lungisa Bosman (BSc Social Science, UCT)
- Ms Daisy Kotsedi (MSc Botany, NMMU)

In fulfilment of this requirement Coastal and Environmental Services (CES) wishes to point to the following expertise of the study team, which includes Dr Alan Carter (Director), Dr Greer Hawley (Principal Environmental consultant), Dr Cherie-Lynn Mack and Mr Lungisa Bosman (Senior consultants), Ms Daisy Kotsedi (Environmental consultant) as well as CES as a consulting firm:

Coastal & Environmental Services (CES) was established in 1990 and is one of the larger specialist environmental consulting firms in South Africa. CES has demonstrated an ability to manage large and complex environmental and multi-disciplinary projects that require a range of skills. This experience was initially gained during the undertaking of integrated environmental management studies, as well as the management of large and complex Environmental Impact Assessments (EIAs). CES has managed over 6 large EIAs for international clients to World Bank standards in southern African countries, which has involved co-ordinating teams of around 15-20 specialists and managing budgets in the order of R1-4 million. We are particularly proud of the success with which we have integrated the physical, biological, social and economic aspects of the environment into the EIA process, as this led to a more balanced impact assessment.

**Dr Alan Carter** Director of the East London office, has extensive training and experience in both financial accounting and environmental science disciplines with international accounting firms in South Africa and the USA. He is a member of the American Institute of Certified Public Accountants and holds a PhD in Plant Sciences, focusing on marine algae. He is also a certified ISO14001 EMS auditor with the American National Standards Institute and the British Standards Institute. Alan is registered with SACNASP as a Professional Natural Scientist and with Environmental Assessment Practitioners of South Africa (EAPSA) as an environmental practitioner. Alan will be responsible for the review of all report writing.



**Dr Greer Hawley**, Principal Environmental Consultant, has a BSc degree in Botany and Zoology and a BSc Honours in Botany from the University of Cape Town. She has a PhD in Microbiology from Rhodes University. Greer has been involved in a number of diverse activities. Her core academic focus is in the field of taxonomy both in the plant and fungal kingdoms. The theory of taxonomy and phylogenetic analysis has been applied to further knowledge of species identification and understanding of biodiversity in South Africa. Greer's research ranges from studying fresh and marine algae (phycology), estuarine diatoms, abalone probiotics. Greer continues to develop her skills in the Botany and Microbiology. She is currently working on numerous impact assessments at the East London branch. Greer will be the project leader overseeing the EIA process and responsible for internal review of reports.

**Dr Cherie-Lynn Mack**, Senior Environmental Consultant, holds a PhD and MSc (with distinction) degrees in Environmental Biotechnology, with a BSc degree in Microbiology and Biochemistry. She has postgraduate research experience in industrial and domestic wastewater treatment technologies, with particular emphasis on the coal and platinum mining industries. Her interests lie in the water sector, with experience in ecological reserve determination and water quality monitoring and analysis. She has experience in water quality analysis and industrial wastewater treatment research. She is currently employed in the East London office of CES as a senior environmental consultant and will be undertaking the waste water impact assessment.

**Mr Lungisa Bosman**, Senior Environmental Consultant, holds a Bachelor of Social Science from UCT, with majors in Public Administration & Sociology, and a Post Graduate Diploma in Organisation and Management. Over the past years Lungisa has gained considerable experience in social facilitation and community education. He is currently working as a consultant for CES at the Grahamstown branch and is involved in a number Environmental Impact Assessments (EIAs), research and public participation.

**Ms Daisy Kotsedi**, Environmental Consultant, has a BSc in Botany and Microbiology and a B.Sc Honours both from Nelson Mandela Metropolitan University in Port Elizabeth. She holds an MSc degree in Botany from Nelson Mandela Metropolitan University. Her research focused on the effects of environmental factors on microalgal biomass and community composition in the Sundays River Estuary. Daisy worked at World Wide Fund for Nature (WWF-SA) as an intern in the freshwater unit for a year before joining CES.

### **1.4.3 The Proponent**

The proponent in this application is:

#### **Eastern Cape Department of Health**

**Contact person:** Mr Edgardo Gamaleri

**Address:** Private Bag X0038, Bisho, 5605

**Tel:** 040 608 1114

**Fax:** 040 608 1118

The engineer for the proposed activity is:

#### **HSC Consulting**

**Contact person:** Mr Colin Driver

**Address:** P.O. Box 11166 Southernwood 5213

**Tel:** 043 743 9528

**Fax:** 043 743 5347

#### **1.4.4 Relevant Authorities**

All waste license applications go to the National Department of Environmental Affairs. As the proposed activity will take place within the Mbizana Local Municipality in the Eastern Cape Province, the relevant authority in this case is:

**Department of Environment Affairs: Alfred Nzo Region (DEA)**

**Regional Manager:** Mr Standford Spotsi

**Address:** Private Bag X3513, Kokstad, 4700

**Tel:** 039 256 0229

**Fax:** 086 613 6312

**National Department of Environmental Affairs: Waste Management**

**Regional Manager:** N. Musekene

**Address:** Private Bag X447, Pretoria, 0001

**Tel:** 012 310 3536

**Reference numbers:** 12/9/11/L999/1 (Decommissioning of existing ponds) and 12/9/11/L998/1 (New oxidation ponds)

PUBLIC REVIEW

## 2 DETAILED PROPOSED ACTIVITY

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation 35, and must include—

- (b) A detailed description of the proposed activity;
- (c) A description of the property on which the activity is to be undertaken and the location of the activity on the property.

### 2.1 St Patrick's Hospital WWTW: Description of Proposed Activity

Mbizana Local Municipality consists of 246 156 people and St Patrick's Hospital is one of two hospitals servicing the entire municipal area (Mbizana LM IDP Review, 2011). The hospital is currently expanding to include a nursing college and additional hospital services, which is encroaching on the existing sewage oxidation ponds.

The proposed project aims to move the existing waste water treatment works (WWTW) to accommodate the increased hospital services and training college at St Patrick's Hospital (Figure 2.1). The existing WWTW consist of 5 ponds that have been recently plastic lined and have a capacity of 96.4 kℓ/day. The proposed new WWTW will include the construction of new oxidation ponds and bio-filter immediately adjacent to the existing ponds, transferring the sludge and effluent from the existing ponds into the new works, then decommissioning of the existing ponds. The new WWTW will be designed to a capacity of 0.1 Mℓ/day.

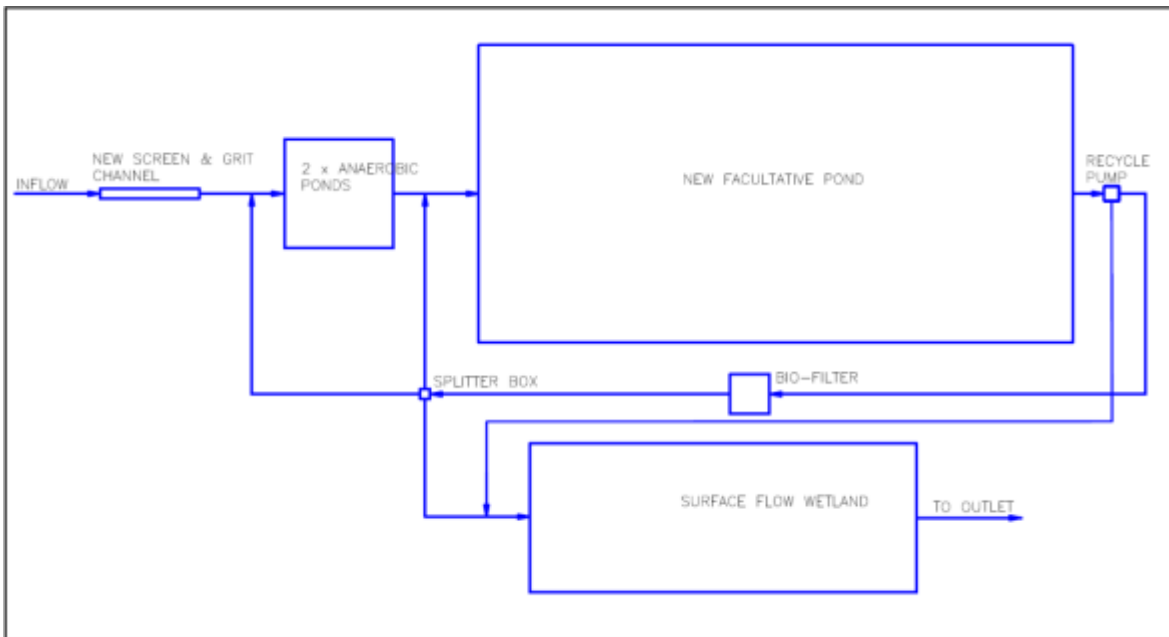
The sewage treatment in this project will entail the following activities (as depicted in Figure 2.1):

- Effluent from the hospital will pass through a screen channel to ensure that no bulk solids are transferred into the ponds.
- Effluent will be digested in two anaerobic ponds in parallel before going through a facultative pond where sewage will be treated and dissolved oxygen removed.
- Effluent from the facultative pond will be pumped to the top of the biofilter.
- Flow from the biofilter can then be recycled to the anaerobic ponds or facultative pond or final flow be discharged into a surface flow wetland.
- Discharge from the surface flow wetland will be of high quality and can therefore be released into the environment.

The decommissioning of existing ponds will include the following steps:

- The ponds will be dewatered and water will be diverted into new WWTW for treatment and disposal.
- The ponds will then be desludged and sludge will be dried and stabilized before being disposed.
- Once the ponds have been emptied the liners will be removed and disposed.
- The final step will be to fill the ponds using excavated soil from the new WWTW construction.





**Figure 2.1 The proposed WWTW at St Patrick's Hospital.**

## 2.2 Property Location

St Patrick's Hospital and the associated WWTW are located in the town of Bizana. GPS co-ordinates for the existing WWTW are S 30° 51' 59.07", E 29° 51' 11.13" (Figure 2.2).



**Figure 2.2 Locality of the existing and proposed new WWTW facility for St Patrick's Hospital. The current oxidation pond system is indicated by the orange outline.**

## 2.3 Activity location

The new oxidation pond system will be located immediately adjacent to the old oxidation ponds with GPS co-ordinates S 30° 52' 01.59", E 29° 51' 12.13" (Figure 2.2).

### 3 NEED AND DESIRABILITY

#### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

- (f) A description of the need and desirability of the proposed activity.

#### 3.1 Waste Water Treatment Works (WWTW) and Provision of Basic Services: Sanitation

St Patrick's Hospital has expanded its hospital services and training college. These include hospital beds, staff houses, accommodation for 100 nurses and residential houses. As result, the existing water supply and WWTW need to be augmented and moved as the expansion will encroach on the ponds. Currently the hospital is served by 5 sewer oxidation ponds. Department of Public Works have requested for the existing ponds to be decommissioned and for a new pond and bio-filter to be constructed.

There is evidence that the existing pond lining has been breached, resulting in significant leakage. Failure to address the state of the WWTW will result in continued ground water contamination and potential health risks and the spread of diseases both for the immediate residents as well as downstream ground water and surface water users.

According to the Mbizana Local Municipality IDP (2011/2012) a major challenge with regards to sanitation services is the lack of a water borne sewage system in the town of Bizana. The municipal ponds are currently in dire need of an upgrade in terms of capacity and treatment technology. The municipality proposes that a new construct a new oxidation pond or fast track water borne sewage system with a waste treatment plants. Although St Patrick's Hospital would ideally link into the municipal system, the ugrade of the Bizana could take years, halting the necessary expansion of health care services and training at St Patrick's Hospital.

#### 3.2 Timing of the activity

The construction of the new WWTW would take place as soon as all the required legislative requirements are met.

## 4 DESCRIPTION OF THE ENVIRONMENT

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation 35, and must include—

- (d) A description of the environment that may be affected by the activity and the manner in which the physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity.

### 4.1 Description of Environment

#### 4.1.1 Climate

Bizana normally receives ~690 mm of rain per year, with most rainfall occurring mainly during mid-summer. The lowest rainfall (8 mm) occurs in June and the highest (104 mm) in December. Average midday temperatures for Bizana range from 19.7 °C in July to 25.2 °C in February. The region is the coldest during July (6.5 °C) on average during the night.

#### 4.1.2 Topography and geology

The terrain type of the study site consists of level plains with some relief and has slope of 9 to 12 % (Figure 4.1).

The geology of the Bizana area consist of apedal and plinthic soils forms derived mostly from Ecca Group (Karoo Supergroup) shale and minor sandstone.

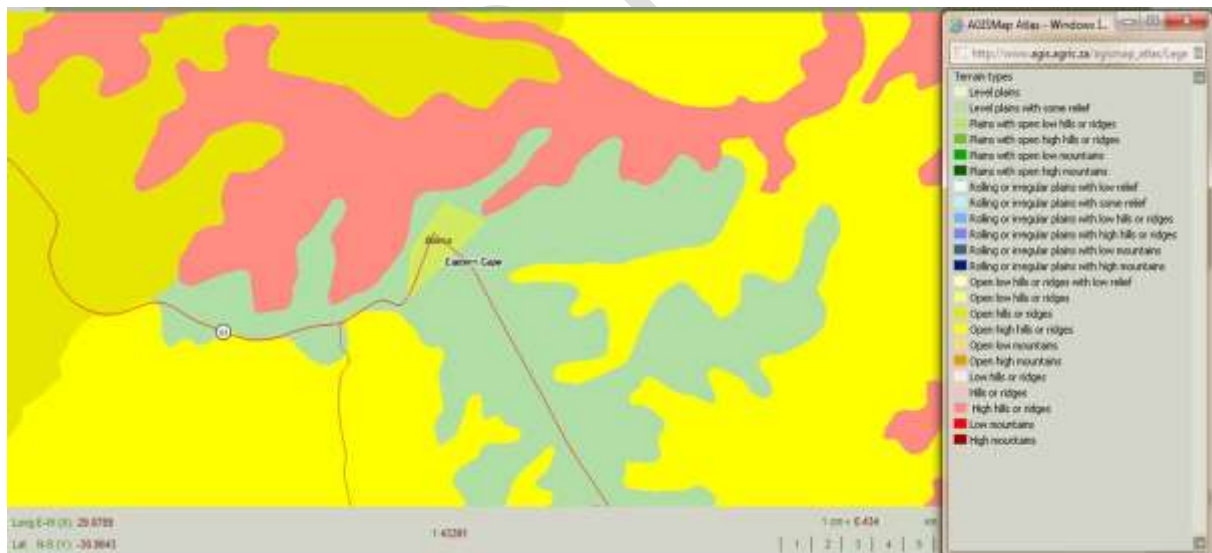


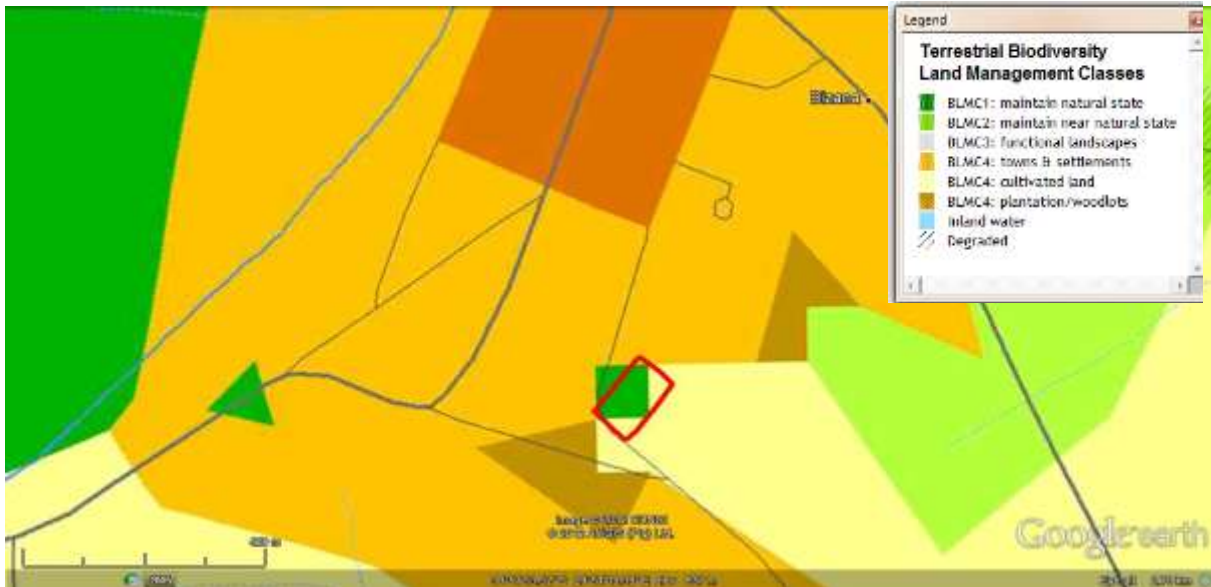
Figure 4.1 Terrain of the existing oxidation pond WWTW.

#### 4.1.3 Ecology

##### South African National Biodiversity Institute (SANBI)

The existing and proposed St Patrick's Hospital WWTW fall within the Midlands Misbelt Grassland (Gs9) (Figure 4.2) as classified by Mucina & Rutherford (2006). Midlands Mistbelt Grassland is dominated by forb-rich, tall sour *Themeda triandra* grasslands, commonly transformed by the invasion of native Ngongoni grass (*Aristida junctiformis* subsp. *junctiformis*). Only a few small patches of the original species-rich grasslands remain





**Figure 4.3 ECBCP land-use map. The red outline represents the location of the existing WWTW located mainly in BLMC 4 and a small area of BLMC 1.**

## 4.2 Site observations

A site visit to the existing WWTW was conducted on the 21 June 2012. Site observations and surrounding environments are discussed below.

### 4.2.1 Vegetation

There is no vegetation on the existing WWTW site as it has already been transformed for the purposes of the oxidation pond (Figure 4.4). The surrounding vegetation consists of short grasslands, devoid of shrubs or herbaceous species. No bush or indigenous trees species were observed. The site has previously been excavated (in March 2010) to investigate seepage from the old WWTW. All activities have been focused on dealing with issues relating to sanitation.



**Figure 4.4 Onsite vegetation (top) and excavated site (bottom).**

### 4.2.2 Site condition and Surrounding land-uses

The surrounding land-uses that were identified within a 600m radius include (Figure 4.6 and 4.7):

- Agriculture (informal/communal grazing)
- Regional road (R61)
- Bizana CBD

- Residential area (Didi location)
- Educational institutions (Bizana Junior Secondary School and Bizana Senior Secondary School)
- Hospital (St Patrick's Hospital)



**Figure 4.6 Surrounding land-uses. Green shaded area = residential area; red shaded area = communal livestock grazing; purple oval = hospital; white oval = schools.**



**Figure 4.7 Surrounding land-use; commonage in the foreground and residential area in the background.**

### 4.3 Socio-economic environment

Mbizana Local Municipality has an estimated population of 246 516 people living in 46 730 households. The municipality is rural (98.5%) with over 250 settlements that are mainly villages and just over 5% of its households residing in the urban centre and peri-urban areas such as Bizana and Mzamba.

MLM has 57.2% unemployment rate and this is due to the lack of contribution to employment by primary sectors (such as agriculture and mining) in terms of their contributions to employment and growth in the local economy. The majority of households are indigent with incomes of less than R1000 a month. The extent of poverty which is characterized by illiteracy, low income levels and lack of access to employment opportunities is a serious challenge for MLM.

In terms of health services, the municipality identified that 25 clinics are needed to service the 246 516 population based on the national benchmark of 10 000 households per clinic facility. However, the municipal area currently has 18 clinics. Only two hospitals service the municipal area (St Patricks & Greenville), but there are mobile clinics throughout the municipality to complement the provision of health care services.

PUBLIC REVIEW

## 5 ALTERNATIVES

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

- (g) A description of identified potential alternatives to the proposed activity, including advantages and disadvantages that the proposed activity or alternative may have on the environment and the community that may be affected by the activity.
- (i) A description and comparative assessment of all alternatives identified during the environmental impact assessment process.

### 5.1 Reasonable and feasible alternatives

The current section describes the alternatives that are considered in the proposed St Patrick's Hospital WWTW.

Alternatives should include consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The “no-go” alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

“**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.

### 5.2 Fundamental, incremental and “no-go” alternatives

#### Fundamental alternatives

Fundamental alternatives are developments that are totally different from the proposed project and usually include the following:

- Alternative **property or location** where it is proposed to undertake the activity;
- Alternative **type of activity** to be undertaken; and
- Alternative **technology** to be used in the activity;

#### Incremental alternatives

Incremental alternatives relate to modifications or variations to the design of a project that provide different options to reduce or minimise environmental impacts. There are several incremental alternatives that can be considered with respect to the current WWTW project, including:



- Alternative **design or layout** of the activity; and
- Alternative **operational aspects** of the activity.

### **No-go alternative**

It is mandatory to consider the “no-go” option in the EIA process. The “no-go” alternative refers to the current status quo and the risks and impacts associated to it.

The “no-go” in this case would entail retaining the existing oxidation ponds and infrastructure at their current location. As the current oxidation ponds still have capacity to treat sewage from St Patrick’s Hospital, no environmental impacts associated with the “No-go” are expected. However, plans for the expansion of health care services indicate that one of the new buildings will encroach onto the primary pond which is unsafe and will therefore be a negative social impact hampering expansion plans.

### **5.3 Assessment of alternatives**

Table 5.1 provides an assessment of identified alternatives to the proposed activity, including advantages and disadvantages. An overall assessment is made concerning whether the identified alternatives are reasonable and feasible for the further assessment of impacts.

The alternatives considered in Table 5.1 include:

- Alternative locations
  1. Adjacent proposed site (preferred alternative)
  2. Offsite treatment at the municipal ponds
- Alternative land-use options
  1. Waste Water Treatment Works (preferred alternative)
  2. Any development option
- Alternative technologies
  1. Oxidation pond system with biofilter and surface flow wetland (preferred alternative)
  2. New activated sludge treatment system
- “No-go” alternative

### **Conclusion**

Based on the manner in which the environment may be affected, a list of general environmental issues and resulting direct, indirect and cumulative impacts were identified and assessed in terms of spatial, temporal, likelihood and severity criteria for all feasible and reasonable alternatives (see Appendix A).

Note: **Alternative technologies** are assessed in the Sewage Treatment Works Impact Assessment (VOLUME 3), therefore only site location and the “No-go” option are addressed in this assessment.

Based on the assessment in Table 5.1, it was determined that the preferred location (adjacent site) was the only reasonable and feasible option to take into the assessment phase of the EIA, together with the “No-go” option (Appendix A).

**Table 5.1 Consideration of Alternatives.**

<b>Alternative level</b>	<b>Alternatives</b>	<b>Advantages</b>	<b>Disadvantages</b>	<b>Reasonable and feasible</b>	<b>Further assessment</b>	<b>Comment</b>
<p><b><u>Property or location</u></b> This refers to the <b><u>fundamental location options</u></b> and the environmental risks and impacts associated with such options.</p>	<p>Alternative location 1 – New WWTW adjacent to existing site (<u>Preferred alternative</u>)</p>	<p>Located on existing WWTW footprint (southwest of existing ponds). Remains within the boundary of the St Patrick’s Hospital property and can therefore be managed and monitored by the Department of Health.</p>	<p>Health issues and odours generated due to close proximity of current WWTW to future hospital services, Didi location, Bizana Senior Secondary School, Bizana Junior Secondary School and an undeveloped site which has been reserved for the development of Bizana Junior Secondary school.</p>	YES	YES	None
	<p>Alternative location 2 – Offsite treatment (Bizana WWTW)</p>	<p>Link to municipal system and no development would occur on the proposed site.</p>	<p>The municipal ponds are currently overburdened and are in dire need of an upgrade in terms of capacity and treatment technology. The upgrade of the Bizana WWTW could take years and as a result halt the necessary expansion of health care services and training at the St Patricks Hospital.</p>	NO	NO	None
<p><b><u>Land-use activity</u></b> This refers to the <b><u>fundamental land use options</u></b>, such as industrial, residential, infrastructure, farming,</p>	<p>Alternative activity 1 – Waste Water Treatment Works (<u>Preferred alternative</u>)</p>	<p>Treat increased volumes of effluent due to hospital expansion.  Contribute to alleviating backlog in service delivery in</p>	<p>Continued potential for environmental contamination from WWTW.</p>	YES	YES	None

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
conservation, etc. and the environmental risks and impacts associated with such options		the Eastern Cape.  Currently utilised as a waste water treatment facility.				
	Alternative activity 2 – any alternative development option	None	Since the site is currently a WWTW, it is unlikely that alternative development would be located at this site.  There is currently no vegetation on the existing WWTW site as it has already been transformed for the purposes of the oxidation pond and considerable site rehabilitation would be required in order to safely utilise this site.	NO	NO	The land is of marginal potential for any other type of activity.
<b><u>Type of technology</u></b> This refers to the <b><u>fundamental technology options</u></b> , such as waste stabilization ponds, activated sludge etc. and the environmental risks and impacts associated with such options.	Alternative sewage treatment technology 1 – oxidation pond with biofilter and surface flow wetland ( <u>Preferred alternative</u> )	Function well if correctly designed. Design is simple and the system requires minimal operation and maintenance. Technology is cost effective and does not rely on electricity. Sludge disposal is infrequent.	Requires large footprint. System may release poor quality effluent.	YES	YES	Currently, effluent is being discharged into a wide flat basin approximately 500m upstream from a drainage line. The engineering design for the new oxidation pond system also included similar discharge.
	Alternative sewage	Less land is required for treatment	Requires more operation, maintenance and capital.	NO	NO	None

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
	treatment technology 2 – New activated sludge system	technology. Effluent of good quality is produced if operated correctly.	Poor effluent quality if not operated correctly. System relies on constant supply of electricity. Sludge must be frequently disposed.			
<p><b>“No-go” option</b> This refers to the current status quo and the risks and impacts associated to it. Some existing activities may carry risks.</p>	Property or location – On the footprint of existing WWTW	Less land required	Construction on existing footprint would require shutdown during construction of treatment system, requiring a shutdown of the hospital. Social benefits of expansion of health care and training will be hampered.	YES	YES	A new WWTW site would result in cumulative impacts.
	Land-use activity – Existing land-use activities on the preferred site include: Waste Water Treatment facility: Oxidation ponds	None	Health issues and odours generated due to close proximity of current WWTW to future hospital services, Didi location, Bizana Senior Secondary School, Bizana Junior Secondary School and an undeveloped site which has been reserved for the development of Bizana Junior Secondary school.  No opportunity for improvement of sewage treatment or effluent disposal.  Sewage from lower portion	NO	NO	Due to the hospital expansion, one of the new buildings will encroach on the primary pond.  The existing oxidation ponds are already in a state of disrepair and will require on-going maintenance.

Alternative level	Alternatives	Advantages	Disadvantages	Reasonable and feasible	Further assessment	Comment
			<p>of hospital will require pumping up to existing WWTW, relating additional energy requirements and higher risk of infrastructure failure.</p> <p>Surface and groundwater contamination associated with effluent discharge and pond leakage.</p>			

PUBLIC REVIEW

## 6 METHODOLOGY FOR ASSESSING ENVIRONMENTAL IMPACTS

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

- (h) An indication of the methodology used in determining the significance of potential environmental impacts.

In line with the above-mentioned requirement, this chapter of the EIR details the approach to the EIA phase of the proposed St Patrick's Hospital WWTW with a particular focus on the methodology that was used when determining the significance of potential environmental impacts.

### 6.1 General Impact Assessment

A general impact assessment was conducted based on site visits and information relating to the construction and operation of the St Patrick's Hospital WWTW.

### 6.2 Specialist Impact Assessment

A specialist study (Sewage Treatment Works Impact Assessment) was conducted during the EIA and the outcomes will be summarised in this EIR. The specialist was required to assess the foreseeable impacts of the proposed project from all possible angles and also to address the issues raised by I&APs (Appendix B) by gathering baseline information and identifying the possible impacts related to the proposed project. Mitigation measures for impacts were also provided.

The detailed specialist study has been compiled into a separate Specialist Volume (*Volume 3: St Patrick's Hospital Wastewater Treatment Works: Sewage Treatment Works Assessment: Specialist Report, CES, October 2012*).

### 6.3 Methodology for Assessing Impacts and Alternatives

#### Introduction

Identified impacts will be assessed against the following criteria:

- Temporal scale
- Spatial scale
- Risk or likelihood
- Degree of confidence or certainty
- Severity or benefits
- Significance

The relationship of the issue to the temporal scale, spatial scale and the severity are combined to describe the overall importance rating, namely the significance.

## Description of criteria

**Table 5.1 Significance Rating Table.**

<b>Significance Rating Table</b>	
<b>Temporal Scale (The duration of the impact)</b>	
Short term	Less than 5 years (Many construction phase impacts are of a short duration).
Medium term	Between 5 and 20 years.
Long term	Between 20 and 40 years (From a human perspective almost permanent).
Permanent	Over 40 years or resulting in a permanent and lasting change that will always be there.
<b>Spatial Scale (The area in which any impact will have an affect)</b>	
Individual	Impacts affect an individual.
Localised	Impacts affect a small area of a few hectares in extent. Often only a portion of the project area.
Project Level	Impacts affect the entire project area.
Surrounding Areas	Impacts that affect the area surrounding the development
Municipal	Impacts affect either the Local Municipality, or any towns within them.
Regional	Impacts affect the wider district municipality or the province as a whole.
National	Impacts affect the entire country.
International/Global	Impacts affect other countries or have a global influence.
Will definitely occur	Impacts will definitely occur.
<b>Degree of Confidence or Certainty (The confidence with which one has predicted the significance of an impact)</b>	
Definite	More than 90% sure of a particular fact. Should have substantial supportive data.
Probable	Over 70% sure of a particular fact, or of the likelihood of that impact occurring.
Possible	Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.
Unsure	Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

**Table 5.2 Impact Severity Rating.**

<b>Impact severity</b> <b>(The severity of negative impacts, or how beneficial positive impacts would be on a particular affected system or affected party)</b>	
Very severe	Very beneficial
An irreversible and permanent change to the affected system(s) or party (ies) which cannot be mitigated. For example the permanent loss of land.	A permanent and very substantial benefit to the affected system(s) or party (ies), with no real alternative to achieving this benefit. For example the vast improvement of sewage effluent quality.
Severe	Beneficial
Long term impacts on the affected system(s) or party (ies) that could be mitigated. However, this mitigation would be difficult, expensive or time consuming, or some combination of these. For example, the clearing of forest vegetation.	A long term impact and substantial benefit to the affected system(s) or party (ies). Alternative ways of achieving this benefit would be difficult, expensive or time consuming, or some combination of these. For example an increase in the local economy.
Moderately severe	Moderately beneficial
Medium to long term impacts on the affected system(s) or party (ies), which could be mitigated. For example constructing the sewage treatment facility where there was vegetation with a low conservation value.	A medium to long term impact of real benefit to the affected system(s) or party (ies). Other ways of optimising the beneficial effects are equally difficult, expensive and time consuming (or some combination of these), as achieving them in this way. For example a 'slight' improvement in sewage effluent quality.
Slight	Slightly beneficial
Medium or short term impacts on the affected system(s) or party (ies). Mitigation is very easy, cheap, less time consuming or not necessary. For example a temporary fluctuation in the water table due to water abstraction.	A short to medium term impact and negligible benefit to the affected system(s) or party (ies). Other ways of optimising the beneficial effects are easier, cheaper and quicker, or some combination of these.
No effect	Don't know/Can't know
The system(s) or party (ies) is not affected by the proposed development.	In certain cases it may not be possible to determine the severity of an impact.

**Table 5.3 Overall Significance Rating.**

<b>Overall Significance</b> <b>(The combination of all the above criteria as an overall significance)</b>	
VERY HIGH NEGATIVE	VERY BENEFICIAL
<p>These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or social) environment, and usually result in <b>severe</b> or <b>very severe</b> effects, or <b>beneficial</b> or <b>very beneficial</b> effects.</p> <p><b>Example:</b> The loss of a species would be viewed by informed society as being of VERY HIGH significance.</p> <p><b>Example:</b> The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with VERY HIGH significance.</p>	
HIGH NEGATIVE	BENEFICIAL
<p>These impacts will usually result in long term effects on the social and/or natural environment. Impacts rated as HIGH will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.</p>	



<b>Example:</b> The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of HIGH over the long term, as the area could be rehabilitated.	
<b>Example:</b> The change to soil conditions will impact the natural system, and the impact on affected parties (such as people growing crops in the soil) would be HIGH.	
MODERATE NEGATIVE	SOME BENEFITS
These impacts will usually result in medium to long term effects on the social and/or natural environment. Impacts rated as MODERATE will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are real but not substantial.	
<b>Example:</b> The loss of a sparse, open vegetation type of low diversity may be regarded as MODERATELY significant.	
LOW NEGATIVE	FEW BENEFITS
These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as LOW will need to be considered by the public and/or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.	
<b>Example:</b> The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.	
<b>Example:</b> The increased earning potential of people employed as a result of a development would only result in benefits of LOW significance to people who live some distance away.	
NO SIGNIFICANCE	
There are no primary or secondary effects at all that are important to scientists or the public.	
<b>Example:</b> A change to the geology of a particular formation may be regarded as severe from a geological perspective, but is of NO significance in the overall context.	
DON'T KNOW	
In certain cases it may not be possible to determine the significance of an impact. For example, the primary or secondary impacts on the social or natural environment given the available information.	
<b>Example:</b> The effect of a particular development on people's psychological perspective of the environment.	

## 7 SUMMARY OF SPECIALIST WASTE WATER IMPACT ASSESSMENT

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation 35, and must include—

- (j) A summary of the findings and recommendations of any specialist report or report on a specialised process.

The following discussion summarises the key findings of the specialist study. A full report can be found in VOLUME 3 of the proposed St Patrick's Hospital WWTW EIA documentation.

### 7.1 Sewage Treatment Works Impact Assessment

A Sewage Treatment Works Impact Assessment was carried out on the construction of new oxidation pond and bio-filter as well as the decommissioning of old ponds at St Patrick's Hospital. The terms of reference for this impact assessment are provided below.

#### 7.1.1 Terms of reference

The general purpose of this specialist report is to:

- a) Provide a detailed and thorough examination of the key issues and environmental impacts of the proposed and alternative sewage treatment system;
- b) Identify and assess the environmental impacts (both negative and positive) that might occur on specific components of the alternative treatment options as a result of the proposed development;
- c) Assess the significance of these environmental impacts based on pre-determined CES spatial, temporal, likelihood and severity rating scales; and
- d) Provide practical and reasonable mitigation measures and recommendations on the most feasible options for management. These recommendations should establish the actions that are needed in order to avoid, minimise or offset any negative impacts from the proposed development.

#### 7.1.2 Technology Assessment

The Sewage Treatment Works Impact Assessment considered TWO potential alternative scenarios involving technology options AND the No-go option:

- Alternative A: Waste Stabilization Ponds (WSP) also known as oxidation ponds
- Alternative B: New Activated Sludge WWTW facility (CAS)
- Alternative C: No-go option (or Status quo)

Table 6.1 below compares the three alternative technologies with regards to issues identified during their operation.

**Table 6.1. WWTW impacts identified by the specialist studies.**

ISSUE	WSP (Alt A)	CAS (Alt B)	STATUS QUO (Alt C)
Electricity-dependence	NO	YES	NO
Requires constant influent water supply	NO	YES	NO
Skilled technical operation	NO	YES	NO
Could produce odours	YES	YES	YES

<b>Leaks</b>	Possible	Possible	YES (already leaking. A ditch has been built to divert leaking sewage around the hospital construction site)
<b>Overflows</b>	Unlikely	Possible	Probable
<b>Sludge disposal requirement</b>	Infrequent	Daily	Infrequent
<b>Technical maintenance (pumps, flow meters, etc.)</b>	NO	YES	NO
<b>Ease of future expansion</b>	NO	YES	NO

The potential environmental impacts of the decommissioning of existing oxidation ponds include:

- Potential soil contamination by sludge drying on surfaces not suitably bunded to prevent liquid from escaping into the environment.
- Ineffective sludge stabilization could lead to pest infestations, e.g. flies, mosquitoes, etc.
- The release of the gas trapped in the bubble in the primary pond may pose a significant health hazard to the surrounding community.
- Liner material not suitably disinfected and disposed could pose health risks to the community.
- If not filled immediately after removal of the plastic liners, wind action could erode the earthen banks of the ponds, destabilizing the area further.

An impact assessment was undertaken and the results are summarised in Table 6.3. From this analysis, the preferred technology option, as derived from the impact assessment, is the oxidation pond system.

**Table 6.3 Summary of the operational impact assessment.**

Alternative	Pre-mitigation				Post-mitigation				EAP PREFERENCE
	L	M	H	VH	L	M	H	VH	
A (WSP)	-2	-1	1(+2)	(+2)	-3	-1	(+2)	(+2)	1
B (CAS)	-2	-3	-3	0	-4	-4	0	0	3
C (SQ)	-3	0	(+2)	-1 (+2)	-3	0	-1 (+2)	(+2)	2

### 7.1.3 Conclusions

The preferred option for treatment of the sewage generated at the St Patrick's Hospital is Alternative A: Construction of a new oxidation pond system including a biofilter and surface wetland with a capacity of 0.1 Ml/day and irrigation as a disposal method for treated effluent. Alternative B (Activated Sludge) being the least preferred option (Table 6.3).

The technical skill competence currently available in a secondary node-type urban setting such as Bizana and the energy demand of the technology option were the main considerations that informed the preferred alternative. The technical and operational risks of the activated sludge system in this regard were considered to be of higher risk compared to the ponding system.

CES recommends that the mitigation measures provided in the Sewage Treatment Works Impact Assessment are effectively implemented and monitored during the construction and life of new WWTW as well as during the decommissioning of existing WWTW.

## **Proposed mitigation measures for the construction of the new oxidation pond system:**

### ODOUR MANAGEMENT

- Design of the WSP should ensure appropriate mixing in each pond to minimize standing water areas that could provide an environment suitable for the generation of odours.
- If offensive odours arise, the source should be investigated immediately and appropriate corrective measures taken.

### LEAK MINIMIZATION

- The new WSP must be adequately lined according to prevailing construction standards.
- The outer walls of WSP must be inspected regularly for possible leaks.
- Unusual vegetative growth in the vicinity of the WSP must be investigated in order to ensure that it is not a result of nutrient-rich effluent leaking from the treatment works.

### SLUDGE DISPOSAL

- Stabilized sewage sludge must be disposed of in accordance with the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009)
- Stabilized sludge must be transported to the nearest registered landfill, unless a more beneficial use can be found.

### OPERATIONAL MAINTENANCE

- Regular inspection of the site is recommended to ensure that possible leaks are identified and that environmental conditions have not impacted on the operation of the WWTW, e.g. wind blowing litter into the WSP, excessive rain causing ponds to overtop, etc.
- Ensure that the site is regularly maintained. This should include the site fencing and clearing of the grit and screenings channels

### OVERFLOW MANAGEMENT

- Ensure that adequately lined drainage channels are in place around the outside of the ponds to ensure that any overflow is captured and diverted to the head of the WWTW.
- Stormwater diversion berms should be incorporated into the site design to prevent ingress of additional water into the WWTW.

## **Proposed mitigation measures for the decommissioning of the existing WWTW:**

### SLUDGE DRYING

- All areas used for sludge drying MUST be suitably bunded to prevent leachate from entering the surrounding environment.
- Leachate can either be evaporated or diverted back into the new WWTW for treatment.

### SLUDGE STABILIZATION

- Sludge MUST be appropriately stabilized using one of the methods described in the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009).

### LINER DISPOSAL

- Liner MUST be left to dry out suitably before removal. A minimum of 30 consecutive dry weather days is suggested.
- If drying is not possible, liners can be rinsed with a mild bleach solution and left to dry until all residual liquid has evaporated and then disposed of.

### SOIL EROSION

- Unlined excavations MUST be filled in as soon as possible.

**In terms of the EIA Regulations (2010):**

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

**(k)** A description of all environmental issues that were identified during the environmental impact assessment process, an assessment of the significance of each issue and an indication of the extent to which the issue could be addressed by the adoption of mitigation measures;

**(l)** An assessment of each identified potentially significant impact including –

- i. Cumulative impacts;
- ii. The nature of the impact;
- iii. The extent and duration of the impact;
- iv. The probability of the impact occurring;
- v. The degree to which the impact can be reversed;
- vi. The degree to which the impact may cause irreplaceable loss of resources;
- vii. The degree to which the impact can be mitigated summary of the findings and recommendations of any specialist report or report on a specialised process.

The impact assessment for the proposed St Patrick's Hospital WWTW was conducted in two parts: a general impact assessment and a specialist impact assessment (see VOLUME 3). Then general impact assessment identified and assessed impacts across four phases of development:

- Planning & Design Phase
- Construction Phase
- Operational Phase
- Decommissioning Phase

The general impact assessment covered issues such as:

- Waste management
- Fires
- Dust
- Noise
- General construction
- Health risks to employees and residents

The identified impacts are listed and categorized according to their nature (i.e. direct, indirect or cumulative) in Table 8.1. Table 8.1 lists all general impacts identified, while impacts identified by the specialist have been summarized in Chapter 7.

Since the only feasible location option has been identified as the adjacent site (Table 5.1) it together with “No-go” option is assessed in Appendix A. The impacts and mitigation measures have been incorporated in the Environmental Management Programme in Appendix E.

**Table 8.1: General impacts identified.**

<b>DESIGN AND PLANNING PHASE</b>
<p><b>Design capacity and stormwater ingress</b></p> <ul style="list-style-type: none"> <li>- Stormwater surges in the WWTW will result in raw and partially treated sewage overflow causing contamination of downstream environments.</li> </ul>
<p><b>Technology employed</b></p> <ul style="list-style-type: none"> <li>- The utilisation of an inappropriate sewage treatment technology would negatively impact on the long-term feasibility of the project in terms of necessary skills and energy requirements and costs, which would in turn result in poor operation, poor treatment and contamination of downstream receiving environments.</li> <li>- The efficiency of a WWTW depends on the level of skills and capacity of the applicant. Technologies that demand a higher level of skill and capacity may therefore run a higher risk of system failure in situations where appropriately skilled operators are not available. This will indirectly cause contamination of downstream environments due to poor system operation.</li> </ul>
<p><b>Risks associated with infrastructure</b></p> <ul style="list-style-type: none"> <li>- Pipe blockages due to inferior quality infrastructure and installation often result in seepage, contaminating of ground and surface water sources, which could affect the health and safety of surrounding land and water users.</li> </ul>
<p><b>Disposal of screenings</b></p> <ul style="list-style-type: none"> <li>- Inappropriate onsite management of screened material can lead to contamination of the surrounding environment through human pathogens and faecal coliforms.</li> </ul>
<p><b>Location of ponds</b></p> <ul style="list-style-type: none"> <li>- The existing and new oxidation ponds are situated near Didi location, Bizana Junior Secondary School, Bizana Senior Secondary School and an undeveloped site which has been reserved for the development of Bizana Junior Secondary school (site is adjacent to the Senior Secondary School). The close proximity of the ponds may expose the population to health hazards.</li> </ul>
<p><b>Land values</b></p> <ul style="list-style-type: none"> <li>- Properties near the oxidation ponds are devalued in each general municipal property valuation, the last being 2010. The earth ponds are unsightly and are not aesthetically pleasing.</li> </ul>
<b>CONSTRUCTION PHASE</b>
<p><b>Waste management</b></p> <ul style="list-style-type: none"> <li>- Littering on and around the construction site can cause environmental damage and is unsightly.</li> <li>- Inappropriate disposal of building waste and rubble could result in environmental damage.</li> </ul>
<p><b>Health hazards for construction workers</b></p> <ul style="list-style-type: none"> <li>- Possible exposure of employees to hazardous substances could occur during construction due to inappropriate procedures or activities in the handling of human waste or exposure to methane gas.</li> </ul>
<p><b>Inappropriate storage of building equipment and hazardous materials on site</b></p> <ul style="list-style-type: none"> <li>- Inappropriate storage of building equipment and hazardous materials on site.</li> </ul>
<p><b>Inappropriate usage of building and hazardous materials on site</b></p> <ul style="list-style-type: none"> <li>- Cement mixing techniques and diesel/oil spillage that occur as a result of poor management and maintained machinery can lead to ground and ground water pollution.</li> </ul>
<p><b>Noise pollution</b></p> <ul style="list-style-type: none"> <li>- Noise can become a nuisance for surrounding residents.</li> </ul>
<p><b>Fires on site could pose a threat to adjacent land users</b></p> <ul style="list-style-type: none"> <li>- Fires started at construction camps could result in uncontrolled fires, posing a threat to livestock and local communities in the area.</li> </ul>
<p><b>Dust (air) pollution caused by grading and levelling exposed land</b></p> <ul style="list-style-type: none"> <li>- The dust created by the installation of the plant will be limited due to the small area to be cleared, but could result in significant dust in windy conditions.</li> </ul>

## **OPERATIONAL PHASE**

### **Above ground (surface water) contamination due to poor maintenance**

- If the treatment works are not adequately maintained, effluent of poor quality may be released into the environment, contaminating water sources with nutrients and faecal coliforms.
- If associated reticulation pipelines within the WWTW are not adequately maintained and monitored, operation may result in leakages and associated contamination of ground water.

### **Waste management**

- Incorrect sludge and screened material disposal and management of screened material could lead to soil contamination that will runoff with storm water into the surrounding environment.
- Poor management of grid screenings and disposal of solid waste will result in foul odours, attraction of flies and pests and may contaminate the surrounding environment with human pathogens, resulting in the spread of diseases.

### **Release of non-compliant effluent**

- Discharge of non-compliant effluent quality may cause contamination of water sources and result in human health hazards.
- Should ground and surface water pollution occur due to inadequate operation or maintenance of the WWTW, it may impact negatively on the people of Bizana and other downstream users.
- Discharge of non-compliant effluent quality may cause contamination of water sources and result in human health hazards.
- Should ground and surface water pollution occur due to inadequate operation or maintenance of the WWTW, it may impact negatively on the people of Bizana and other downstream users.

### **Health risks to employees**

- Possible exposure of employees to hazardous substances (including solid waste from screenings) could occur should the WWTW not be effectively managed.

### **Foul odours and pest management**

- Efficient operation of the WWTW may be compromised by the lack of appropriately skilled operators resulting in system failure and odour generation.
- The community might experience offensive smells, fly and mosquito infestations and invasion by vermin such as rodents and snakes might be a problem.

### **Operational skills capacity**

- The efficiency of a WWTW depends on the level of skills and capacity of the applicant. Low levels of skill and capacity may result in a higher risk of system failure that will result in poor sewage treatment, discharge of poor quality effluent and contamination of downstream environments.

### **Operational budget**

- During the life of the WWTW, regular maintenance and monitoring will be required. Budget for these activities may not be made readily available to the operators.

### **Contamination of surface and ground water sources**

- Irrigation with treated effluent from the St Patrick's Hospital WWTW can lead to the contamination of surrounding surface and ground water sources if applied at inappropriate times and at high volumes.

### **Risks to human health and livestock due to irrigation with treated effluent**

- The treated effluent from the WWTW will still contain faecal coliforms and E. coli. Should humans and animals ingest produce that has been irrigated with effluent, it may result in the spread of diseases such as typhoid and dysentery.

## **DECOMMISSIONING PHASE**

### **Sludge drying**

- Temporary sludge drying on beds may allow leachate to infiltrate the surrounding soil, causing soil eutrophication and associated contamination.

### **Sludge stabilization**

- Ineffective sludge stabilization could lead to pest infestations and pose health risks to surrounding communities.

**High methane risk**

- The release of gas trapped under the liner in the primary pond of the existing WWTW may pose a significant health risk to the surrounding community.

**Soil erosion**

- If unlined ponds are left exposed, the excavations may begin to erode as a result of water and wind action. This may result in destabilization of the banks and generation of nuisance dust.

**Health hazards for construction workers**

- Possible exposure of employees to hazardous substances such as human pathogens during the decommissioning phase due to exposure to methane gas or inappropriate procedures when handling of human waste.

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## 9 ENVIRONMENTAL IMPACT STATEMENT

### In terms of the EIA Regulations (2010):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation 35, and must include—

- (m) A description of any assumptions, uncertainties and gaps in knowledge;
- (n) A reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;
- (o) An Environmental Impact Statement which contains:
  - i. A summary of the key findings of the environmental impact assessment
  - ii. A comparative assessment of the positive and negative implications of the proposed activity and identified alternatives.

### 9.1 Description of Proposed Activity

Mbizana Local Municipality is made up of approximately 246 000 people. St Patrick's Hospital is one of two hospitals servicing the municipal area (Mbizana LM IDP Review, 2011). The hospital is currently expanding to include a nursing college and additional hospital services, which is encroaching on the existing sewage oxidation ponds.

The proposed project aims to move the existing waste water treatment works (WWTW) to accommodate the increased hospital services and training college at St Patrick's Hospital. The existing WWTW consist of 5 ponds that have been recently plastic lined and have a capacity of 96.4 kl/day. The proposed new WWTW will include the construction of new oxidation ponds and bio-filter immediately adjacent to the existing ponds, transferring the sludge and effluent from the existing ponds into the new works, then decommissioning of the existing ponds. The new WWTW will be designed to a capacity of 0.1 Ml/day.

### 9.2 Assumptions, uncertainties and gaps

All technical information provided is based on the technical engineering report made available to CES.

### 9.3 Concluding remarks and Impact Statement

The general environmental impacts associated with the Planning and Design, Construction and Operation of the proposed construction of a new WWTW for St Patrick's Hospital were assessed.

Pre-mitigation, most impacts were rated as HIGH AND MODERATE, with most number of impacts occurring in the Operation Phase (Table 9.1). All the HIGH rated impacts could be mitigated to LOW and MODERATE. Post-mitigation, the majority of impacts could be rated as LOW.

**Table 9.1 The assessment of all the identified impacts in this study is summarised in the table below.**

	PRE-MITIGATION				POST-MITIGATION			
	LOW	MODERATE	HIGH	VERY HIGH	LOW	MODERATE	HIGH	VERY HIGH
Planning and Design	(+1)(-1)	1(-1)	2(+1)	0	3(+1)(-1)	1	(+1)	0

Construction	1	6	1	0	7	1	0	0
Operation	(-1)	4	7	1	7(-1)	5	0	0
Decommissioning	(-1)	(+2)	1(-2)	(-3)	1(-1)	(-1)	0	0
<b>TOTAL</b>	<b>1(+1)(-3)</b>	<b>11(+2)(-1)</b>	<b>11(+1)(-2)</b>	<b>1(-3)</b>	<b>18(+1)(-3)</b>	<b>7(-1)</b>	<b>(+1)</b>	<b>0</b>

### 9.3.1 Opinion of the EAP

It is the opinion of the EAP that, given the implementation of all the mitigation measures, provided in this report and listed in Section 8.4 below, negative impacts can be mitigated to an **acceptable level**.

### 9.4 Recommended mitigation measures

All the mitigation measures provided below are to be implemented in the Planning & Design, Construction and Operation Phase of the new St Patrick's Hospital WWTW and Decommissioning of the existing WWTW.

The mitigations measures derived from the Impact Assessment are summarised below and must be implemented together with mitigation measures provided for in the Sewage Treatment Works Impact Assessment AND the Environmental Management Programme.

#### 9.4.1 Planning and Design Phase

- The design of waste stabilisation ponds incorporates a significant free-board volume, which should compensate for most storm events.
- Ensure that adequately lined drainage is in place around the outside of the ponds to ensure that any overflow is diverted back to the head of the WWTW.
- Stormwater diversion berms should be incorporated into the site design.
- Pro-active environmental management measures must be undertaken in the planning phase to minimise the likelihood of such impacts taking place during the construction and operational phases. However, contingency plans (EMPr, conditions of the Authorisation, etc.) must be employed to further limit the potential impacts.
- Regular site inspection and critical observation of the ponds is recommended to ensure that possible leaks are identified and that environmental conditions have not impacted on the operation of the WWTW, e.g. wind blowing litter into the oxidation ponds, excessive rain causing ponds to overtop, etc. On-site operating staff MUST be trained and certified by the relevant authorities.
- The sewerage pipes must be tested for defects and leaks before the trenches are closed.
- Technically appropriate and SABS approved sewer material must be used.
- Screened material must be dried and contained in a bunded area before disposal to a licensed waste disposal facility.
- Ensure suitable drying area is included into the site design.
- The existing ponds will be decommissioned and new hospital buildings constructed on this site. The proposed new WWTW will be situated further from Hope Street and Bizana Senior Secondary School than the existing ponds.
- Regular maintenance and inspection of the site is recommended to ensure that possible issues are identified early and appropriate corrective measures carry out.
- Secure fencing and access control to WWTW to prevent tampering by unauthorized persons.

- No mitigation required as the new location could improve the aesthetics of residents on Hope Street.

#### **9.4.2 Construction Phase**

- Construction personnel must be informed of the importance of disposing waste in a suitable manner.
- Collected waste must be categorised as “hazardous”, “general waste” and “construction rubble”. Separate, distinguishable containers should be provided for different waste categories.
- Litter and construction waste must be removed on a regular basis and disposed in an approved off site location (registered disposal site).
- Potentially hazardous materials must be handled and stored on site in containers with tight lids that must be sealed and disposed of at an appropriately permitted hazardous waste disposal site.
- The Contractor must maintain a register of the hazardous materials and must document the use, storage, final destination and method of disposal.
- Construction workers must be given training pertaining to hazardous sewage material and handling techniques.
- Construction workers must wear protective gear in line with Health and Safety regulations.
- Regulate the storage of potentially hazardous material such that contamination of the environment is mitigated.
- Cement and concrete must not be mixed directly on the ground, or during rainfall events when the potential for transport of pollutants to watercourses is the greatest. Cement and concrete must only be mixed in the area demarcated for this purpose and on an impermeable substratum.
- All construction water and contaminated runoff must be directed away from the drainage line.
- Oil trays must be placed under the machinery to avoid soil contamination. All areas affected during the Construction Phase should be rehabilitated.
- The noise created by the construction phase will be limited to the small scale construction and the relatively short duration of construction. Noise pollution is not considered a significant impact.
- Fires are prohibited on site. Any source of fire hazards must be removed. The construction and operating personnel must be educated regarding fire and fire management, and fire extinguishers must be available on site. The Contractor must ensure that the risk of fire is kept to a minimum on site.
- Exposed soils must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust generation.
- Any soil excavated, and not utilised for rehabilitation, must be removed from site or covered and no large mounds of soil should be left behind after construction.

#### **9.4.3 Operation Phase**

- Effluent quality must, as a minimum, be analysed monthly for the first two years and thereafter monitored bimonthly (every two months).
- Deep green vegetation indicative of nutrient enrichment or shift in plant species composition (to reeds) in the vicinity of the WSP MUST be investigated in order to ensure that it is not a result of nutrient-rich effluent leaking from the treatment works.
- Appropriate corrective actions must be taken if contamination is detected or effluent quality does not meet discharge standards.
- The sewerage pipes must be tested for defects and leaks before the trenches are closed.
- Ground water monitoring holes must be tested for potential sewage leakages.

- Stabilized sewage sludge must be disposed of in accordance with the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009).
- Stabilized sludge must be transported to the nearest registered landfill, unless a more beneficial use can be found.
- The sludge ponds must be lined with an impermeable material to prevent soil and groundwater contamination.
- Screens must be checked and cleared regularly and the site kept in a tidy state. Ensure that screenings are removed from the grid and dried, placed into the trench and limed on a daily basis.
- The relevant staff responsible for solid waste disposal must be trained and must conduct solid waste disposal tasks daily.
- Regular inspection of the site is recommended to ensure that possible leaks are identified.
- Effluent quality must be monitored by an accredited laboratory. Green Drop status standards and guidelines must be achieved.
- No treated effluent may be discharged into any water course and must only be utilised for irrigation.
- The facility must be consistently monitored of leakage and resultant contamination of ground water.
- Employees must undergo training in Health and Safety of a WWTW in order to minimise the likelihood and severity of this impact.
- Correct operation of the waste water treatment works would mitigate this impact. When sulphurous odours are detectable, this is normally the first indication that the works are not functioning optimally. The source of odour should be investigated immediately and appropriate corrective measures taken.
- If offensive odours arise, the source should be investigated immediately and appropriate corrective measures taken.
- Ensure that screenings are correctly and securely kept prior to disposal.
- The applicant must implement extensive training for all employees and staff on the operation and maintenance of the treatment facility.
- An annual audit on the training expertise of the staff needs to be undertaken in order to assess whether further training is necessary.
- Provide adequate operational and maintenance budget.
- Educational programmes on the risks and management of effluent irrigation and utilisation must be rolled out to the community and local authorities and operators. The community must also be educated on the agricultural activities that can and cannot be undertaken on the irrigated land.
- The utilisation of effluent from the WWTW in St Patrick's Hospital must comply with the DWA Guidelines for Permissible utilisation and disposal of treated sewage effluent (1978) that allows the following uses for an oxidation pond system (with associated conditions):
  - Crops for human consumption which are NOT eaten raw
  - Cultivation of cut flowers
  - Fruit trees and vineyards
  - Grazing for cattle (excluding milk producing animals)
  - Crops not for grazing, but utilised as dry fodder.

#### **9.4.4 Decommissioning**

- All areas used for sludge drying MUST be suitably bunded to prevent leachate from entering the surrounding environment.
- A portion of sludge from the existing WWTW may be transferred to the new WWTW in order to serve as a microbial "starter" culture in the anaerobic ponds.
- Leachate must be evaporated or diverted back into the new WWTW for treatment.
- Dispose of sludge in a licensed landfill site.

- Sludge MUST be appropriately stabilized using one of the methods described in the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009) prior to disposal.
- The treatment works MUST be upgraded to avoid this.
- Cease using existing ponds.
- Identify a safe method to extract methane.
- Liner MUST be left to dry out properly before removal. A minimum of 30 consecutive dry weather days is suggested.
- If drying is not possible, liners can be rinsed with a mild bleach solution and left to dry until all residual liquid has evaporated and then disposed of in a licensed landfill site.
- Unlined excavations MUST be filled in as soon as possible.
- Ensure all staff are adequately trained to handle hazardous material.
- Construction workers must wear protective gear in line with Health and Safety regulations.

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## 10 REFERENCES

Berliner, D., Desmet, P., and R., Hayes. 2007. Eastern Cape Biodiversity Conservation Plan (ECBCP). Department of Water Affairs and Forestry. Project No 2005-012, King William's Town.

Constitution Act (108 Of 1996)

Guidelines for the Utilisation and Disposal of Wastewater Sludge. Volume 1: Selection of Management options. WRC Report No. TT261/06 (March 2006).

Hazardous Substances Act (15 of 1973)

HSC Consulting (2012) St Patrick's Hospital: Phase 4. Civil Engineering Design Report. Update Report – Rev 1.

Mucina, L. and Rutherford, M.C. (2006). The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute. Pretoria. pp 422-423.

Mbizana Local Municipality IDP Review 2011/2012 (2011)

National Environment Management Act (No. 107 of 1998)

National Environmental Management: Air Quality Act (No. 163 of 2004)

National Environmental Management: Waste Act (No. 59 of 2008)

National Water Act (No. 36 of 1998)

## **11 APPENDICES**

<b>APPENDIX A:</b>	<b>FULL ASSESSMENT OF IMPACTS RELATED TO THE PROJECT</b>
<b>APPENDIX B:</b>	<b>I&amp;AP REGISTER &amp; PUBLIC PARTICIPATION SUPPORTING DOCUMENTS</b>
<b>APPENDIX C:</b>	<b>ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)</b>
<b>APPENDIX D:</b>	<b>ENGINEERING TECHNICAL REPORT</b>
<b>VOLUME 3:</b>	<b>SPECIALIST REPORT Sewage Treatment Works Impact Assessment</b>

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**APPENDIX A - FULL ASSESSMENT OF IMPACTS RELATED TO THE ST PATRICK'S HOSPITAL WWTW PROJECT**

**Impacts and mitigation of the Planning and Design phase of the Preferred Alternative (New WWTW adjacent to the existing WWTW / oxidation ponds).**

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
Design capacity and stormwater ingress	Stormwater surges in the WWTW will result in raw and partially treated sewage overflow causing contamination of downstream environments.	<u>Short term</u>	<i>Localised</i>	<i>Unlikely</i>	<i>Slight</i>	LOW NEGATIVE	<ul style="list-style-type: none"> <li>The design of waste stabilisation ponds incorporates a significant free-board volume, which should compensate for most storm events.</li> <li>Ensure that adequately lined drainage is in place around the outside of the ponds to ensure that any overflow is diverted back to the head of the WWTW.</li> <li>Stormwater diversion berms should be incorporated into the site design.</li> </ul>	LOW
Technology employed	The utilisation of an inappropriate sewage treatment technology would negatively impact on the long-term feasibility of the project in terms of necessary skills and energy requirements and costs, which would in turn result in poor operation, poor treatment and contamination of downstream receiving environments.	<u>Long term</u>	<i>Surrounding areas and downstream</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Pro-active environmental management measures must be undertaken in the planning phase to minimise the likelihood of such impacts taking place during the construction and operational phases. However, contingency plans (EMPr, conditions of the Authorisation, etc.) must be employed to further limit the potential impacts.</li> </ul>	LOW
	The efficiency of a WWTW depends on the level of skills and capacity of the applicant. Technologies that demand a higher level of skill and capacity may therefore run a higher risk of system failure in situations where appropriately skilled operators are not available. This will indirectly cause contamination of downstream environments due to poor system operation.	<u>Long term</u>	<i>Municipal</i>	<i>Definite</i>	<i>Highly beneficial</i>	HIGH POSITIVE	<ul style="list-style-type: none"> <li>Regular site inspection and critical observation of the ponds is recommended to ensure that possible leaks are identified and that environmental conditions have not impacted on the operation of the WWTW, e.g. wind blowing litter into the oxidation ponds, excessive rain causing ponds to overtop, etc. On-site operating staff MUST be trained and certified by the relevant authorities.</li> </ul>	HIGH POSITIVE
Risks associated with infrastructure	Pipe blockages due to inferior quality infrastructure and installation often result in seepage, contaminating of ground and surface water sources, which could affect the health and safety of surrounding land and water users.	<u>Long term</u>	<i>Surrounding areas and downstream</i>	<i>Probable</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>The sewerage pipes must be tested for defects and leaks before the trenches are closed.</li> <li>Technically appropriate and SABS approved sewer material must be used.</li> </ul>	MODERATE
Disposal screenings of	Inappropriate onsite management of screened material can lead to contamination of the surrounding environment through human pathogens and faecal coliforms.	<u>Long-term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Screened material must be dried and contained in a bunded area before disposal to a licensed waste disposal facility.</li> <li>Ensure suitable drying area is included into the site design.</li> </ul>	LOW
Location of ponds	The existing and new oxidation ponds are situated near Didi location, Bizana Junior Secondary School, Bizana Senior Secondary School and an undeveloped site which has been reserved for the development of Bizana Junior Secondary school (site is adjacent to the Senior Secondary School). The close proximity of the	<u>Permanent</u>	<i>Surrounding areas</i>	<i>Definite</i>	<i>Moderately severe</i>	MODERATE NEGATIVE	<ul style="list-style-type: none"> <li>The existing ponds will be decommissioned and new hospital buildings constructed on this site. The proposed new WWTW will be situated further from Hope Street and Bizana Senior Secondary School than the existing ponds.</li> </ul>	LOW NEGATIVE

	ponds may expose the population to health hazards.						<ul style="list-style-type: none"> <li>Regular maintenance and inspection of the site is recommended to ensure that possible issues are identified early and appropriate corrective measures carry out.</li> <li>Secure fencing and access control to WWTW to prevent tampering by unauthorized persons.</li> </ul>	
Land values	Properties near the oxidation ponds are devalued in each general municipal property valuation, the last being 2010. The earth ponds are unsightly and are not aesthetically pleasing.	<u>Permanent</u>	<i>Surrounding areas</i>	<i>Probable</i>	<i>Severe</i>	LOW POSITIVE	<ul style="list-style-type: none"> <li>No mitigation required as the new location could improve the aesthetics of residents on Hope Street.</li> </ul>	LOW POSITIVE

**Impacts and mitigation of the Construction phase of the Preferred Alternative (New WWTW adjacent to the existing WWTW / oxidation ponds).**

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
Waste management	Littering on and around the construction site can cause environmental damage and is unsightly.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Construction personnel must be informed of the importance of disposing waste in a suitable manner.</li> </ul>	LOW
	Inappropriate disposal of building waste and rubble could result in environmental damage.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Collected waste must be categorised as “hazardous”, “general waste” and “construction rubble”. Separate, distinguishable containers should be provided for different waste categories.</li> <li>Litter and construction waste must be removed on a regular basis and disposed in an approved off site location (registered disposal site).</li> <li>Potentially hazardous materials must be handled and stored on site in containers with tight lids that must be sealed and disposed of at an appropriately permitted hazardous waste disposal site.</li> <li>The Contractor must maintain a register of the hazardous materials and must document the use, storage, final destination and method of disposal.</li> </ul>	LOW
Health hazards for construction workers	Possible exposure of employees to hazardous substances could occur during construction due to inappropriate procedures; activities in the handling of human waste or exposure to methane gas.	<u>Short-term</u>	<i>Localised</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Construction workers must be given training pertaining to hazardous sewage material and handling techniques.</li> <li>Construction workers must wear protective gear in line with Health and Safety regulations.</li> </ul>	MODERATE
Inappropriate storage of building equipment and hazardous materials on site	Inappropriate storage of building material may pollute the soil and ground water.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Regulate the storage of potentially hazardous material such that contamination of the environment is mitigated.</li> </ul>	LOW

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
Inappropriate usage of building and hazardous materials on site	Cement mixing techniques and diesel/oil spillage that occur as a result of poor management and maintained machinery can lead to ground and ground water pollution.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Cement and concrete must not be mixed directly on the ground, or during rainfall events when the potential for transport of pollutants to watercourses is the greatest. Cement and concrete must only be mixed in the area demarcated for this purpose and on an impermeable substratum.</li> <li>All construction water and contaminated runoff must be directed away from the drainage line.</li> <li>Oil trays must be placed under the machinery to avoid soil contamination. All areas affected during the Construction Phase should be rehabilitated.</li> </ul>	LOW
Noise pollution	Noise can become a nuisance for surrounding residents	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Slight</i>	LOW	<ul style="list-style-type: none"> <li>The noise created by the construction phase will be limited to the small scale construction and the relatively short duration of construction. Noise pollution is not considered a significant impact.</li> </ul>	LOW
Fires on site could pose a threat to adjacent land users	Fires started at construction camps could result in uncontrolled fires, posing a threat to livestock and local communities in the area.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Fires are prohibited on site. Any source of fire hazards must be removed. The construction and operating personnel must be educated regarding fire and fire management, and fire extinguishers must be available on site. The Contractor must ensure that the risk of fire is kept to a minimum on site.</li> </ul>	LOW
Dust (air) pollution caused by grading and levelling exposed land	The dust created by the installation of the plant will be limited due to the small area to be cleared, but could result in significant dust in windy conditions.	<u>Short term</u>	<i>Localised</i>	<i>Probable</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Exposed soils must be dampened whenever possible and especially in dry and windy conditions to avoid excessive dust generation.</li> <li>Any soil excavated, and not utilised for rehabilitation, must be removed from site or covered and no large mounds of soil should be left behind after construction.</li> </ul>	LOW

**Impacts and mitigation of the Operational phase of the Preferred Alternative (New WWTW adjacent to the existing WWTW / oxidation ponds).**

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
Above ground (surface water) contamination due to poor maintenance	If the treatment works are not adequately maintained, effluent of poor quality may be released into the environment, contaminating water sources with nutrients and faecal coliforms.	<u>Short term</u>	<i>Localised</i>	<i>Probable</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Effluent quality must, as a minimum, be analysed monthly for the first two years and thereafter monitored bimonthly (every two months).</li> <li>Deep green vegetation indicative of nutrient enrichment or shift in plant species composition (to reeds) in the vicinity of the</li> </ul>	LOW

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
							<p>WSP MUST be investigated in order to ensure that it is not a result of nutrient-rich effluent leaking from the treatment works.</p> <ul style="list-style-type: none"> <li>Appropriate corrective actions must be taken if contamination is detected or effluent quality does not meet discharge standards.</li> </ul>	
	If associated reticulation pipelines within the WWTW are not adequately maintained and monitored, operation may result in leakages and associated contamination of ground water.	<u>Short term</u>	<i>Localised</i>	<i>Probable</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>The sewerage pipes must be tested for defects and leaks before the trenches are closed.</li> <li>Ground water monitoring holes must be tested for potential sewage leakages.</li> </ul>	LOW
Waste management	Incorrect sludge and screened material disposal and management of screened material could lead to soil contamination that will runoff with storm water into the surrounding environment.	<u>Short term</u>	<i>Surrounded areas</i>	<i>Possible</i>	<i>Slight</i>	LOW NEGATIVE	<ul style="list-style-type: none"> <li>Stabilized sewage sludge must be disposed of in accordance with the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009).</li> <li>Stabilized sludge must be transported to the nearest registered landfill, unless a more beneficial use can be found.</li> <li>The sludge ponds must be lined with an impermeable material to prevent soil and groundwater contamination.</li> </ul>	LOW NEGATIVE
	Poor management of grid screenings and disposal of solid waste will result in foul odours, attraction of flies and pests and may contaminate the surrounding environment with human pathogens, resulting in the spread of diseases.	<u>Long-term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>Screens must be checked and cleared regularly and the site kept in a tidy state. Ensure that screenings are removed from the grid and dried, placed into the trench and limed on a daily basis.</li> <li>The relevant staff responsible for solid waste disposal must be trained and must conduct solid waste disposal tasks daily.</li> </ul>	LOW
Release of non-compliant effluent	Discharge of non-compliant effluent quality may cause contamination of water sources and result in human health hazards.	<u>Long term</u>	<i>Surrounding areas and downstream</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Regular inspection of the site is recommended to ensure that possible leaks are identified.</li> <li>Effluent quality must be monitored by an accredited laboratory. Green Drop status standards and guidelines must be achieved.</li> </ul>	MODERATE
	Should ground and surface water pollution occur due to inadequate operation or maintenance of the WWTW, it may impact negatively on the people of Bizana and other downstream users. The release of poor quality effluent into the receiving environment could cause excessive algal blooms downstream, which can affect production efficiencies within the water bodies and kill plants and animals.	<u>Short term</u>	<i>Localised</i>	<i>Possible</i>	<i>Moderately severe</i>	MODERATE	<ul style="list-style-type: none"> <li>No treated effluent may be discharged into any water course and must only be utilised for irrigation.</li> <li>The facility must be consistently monitored of leakage and resultant contamination of ground water.</li> </ul>	LOW
Health risks to	Possible exposure of employees to hazardous	<u>Long term</u>	<i>Localised</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Employees must undergo training in Health</li> </ul>	MODERATE

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
employees	substances (including solid waste from screenings) could occur should the WWTW not be effectively managed.						and Safety of a WWTW in order to minimise the likelihood and severity of this impact.	
Foul odours and pest management	Efficient operation of the WWTW may be compromised by the lack of appropriately skilled operators resulting in system failure and odour generation.	<u>Long term</u>	<i>Surrounding areas and downwind</i>	<i>Probable</i>	<i>Moderately severe</i>	HIGH	<ul style="list-style-type: none"> <li>Correct operation of the waste water treatment works would mitigate this impact. When sulphurous odours are detectable, this is normally the first indication that the works are not functioning optimally. The source of odour should be investigated immediately and appropriate corrective measures taken.</li> </ul>	LOW
	The community might experience offensive smells, fly and mosquito infestations and invasion by vermin such as rodents and snakes might be a problem.	<u>Long term</u>	<i>Localised</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>If offensive odours arise, the source should be investigated immediately and appropriate corrective measures taken.</li> <li>Ensure that screenings are correctly and securely kept prior to disposal.</li> </ul>	MODERATE
Operational capacity skills	The efficiency of a WWTW depends on the level of skills and capacity of the applicant. Low levels of skill and capacity may result in a higher risk of system failure that will result in poor sewage treatment, discharge of poor quality effluent and contamination of downstream environments.	<u>Long term</u>	<i>Surrounding areas and downstream</i>	<i>Probable</i>	<i>Severe</i>	VERY HIGH	<ul style="list-style-type: none"> <li>The applicant must implement extensive training for all employees and staff on the operation and maintenance of the treatment facility.</li> <li>An annual audit on the training expertise of the staff needs to be undertaken in order to assess whether further training is necessary.</li> </ul>	MODERATE
Operational budget	During the life of the WWTW, regular maintenance and monitoring will be required. Budget for these activities may not be made readily available to the operators.	<u>Long term</u>	<i>Surrounding areas and downstream</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Provide adequate operational and maintenance budget.</li> </ul>	MODERATE
Contamination of surface and ground water sources	Irrigation with treated effluent from the St Patrick's Hospital WWTW can lead to the contamination of surrounding surface and ground water sources if applied at inappropriate times and at high volumes.	<u>Long-term</u>	<i>Surrounding areas and downstream</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Educational programmes on the risks and management of effluent irrigation and utilisation must be rolled out to the community and local authorities and operators. The community must also be educated on the agricultural activities that can and cannot be undertaken on the irrigated land.</li> </ul>	LOW
Risks to human health and livestock due to irrigation with treated effluent	The treated effluent from the WWTW will still contain faecal coliforms and <i>E. coli</i> . Should humans and animals ingest produce that has been irrigated with effluent, it may result in the spread of diseases such as typhoid and dysentery.	<u>Long-term</u>	<i>Surrounding areas and downstream</i>	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>The utilisation of effluent from the WWTW in St Patrick's Hospital must comply with the DWA Guidelines for Permissible utilisation and disposal of treated sewage effluent (1978) that allows the following uses for an oxidation pond system (with associated conditions): <ul style="list-style-type: none"> <li>Crops for human consumption which are NOT eaten raw</li> <li>Cultivation of cut flowers</li> <li>Fruit trees and vineyards</li> <li>Grazing for cattle (excluding milk producing animals)</li> <li>Crops not for grazing, but utilised as dry fodder.</li> </ul> </li> </ul>	LOW

**Impacts associated with the Decommissioning phase of the existing St Patrick's Hospital WWTW.**

Issue	Impact Description	Temporal	Spatial	Likelihood	Severity	Significance Pre-mitigation	Mitigation	Significance Post-mitigation
Sludge drying	Temporary sludge drying on beds may allow leachate to infiltrate the surrounding soil, causing soil eutrophication and associated contamination.	<u>Short term</u>	Localised	<i>Possible</i>	<i>Moderately severe</i>	MODERATE NEGATIVE	<ul style="list-style-type: none"> <li>All areas used for sludge drying MUST be suitably bunded to prevent leachate from entering the surrounding environment.</li> <li>A portion of sludge from the existing WWTW may be transferred to the new WWTW in order to serve as a microbial "starter" culture in the anaerobic ponds.</li> <li>Leachate must be evaporated or diverted back into the new WWTW for treatment.</li> <li>Dispose of sludge in a licensed landfill site.</li> </ul>	LOW NEGATIVE
Sludge stabilization	Ineffective sludge stabilization could lead to pest infestations and pose health risks to surrounding communities.	<u>Short term</u>	Surrounding areas	<i>Possible</i>	<i>Severe</i>	HIGH NEGATIVE	<ul style="list-style-type: none"> <li>Sludge MUST be appropriately stabilized using one of the methods described in the Guideline for Permissible Utilisation and Disposal of Wastewater Sludge Volume 3: Requirements for the on-site and off-site disposal of sludge (2009) prior to disposal.</li> </ul>	MODERATE NEGATIVE
High methane risk	The release of gas trapped under the liner in the primary pond of the existing WWTW may pose a significant health risk to the surrounding community.	<u>Short term</u>	Surrounding areas	<i>Probable</i>	<i>Severe</i>	HIGH NEGATIVE	<ul style="list-style-type: none"> <li>The treatment works MUST be upgraded to avoid this.</li> <li>Cease using existing ponds.</li> <li>Identify a safe method to extract methane.</li> </ul>	HIGH NEGATIVE
Liner disposal	Inappropriate disposal of plastic liner material may pose a health risk to the surrounding communities.	<u>Short term</u>	Surrounding areas	<i>Possible</i>	<i>Moderately severe</i>	MODERATE NEGATIVE	<ul style="list-style-type: none"> <li>Liner MUST be left to dry out properly before removal. A minimum of 30 consecutive dry weather days is suggested.</li> <li>If drying is not possible, liners can be rinsed with a mild bleach solution and left to dry until all residual liquid has evaporated and then disposed of in a licensed landfill site.</li> </ul>	LOW NEGATIVE
Soil erosion	If unlined ponds are left exposed, the excavations may begin to erode as a result of water and wind action. This may result in destabilization of the banks and generation of nuisance dust.	<u>Short term</u>	Localised	<i>Possible</i>	<i>Slight</i>	LOW NEGATIVE	<ul style="list-style-type: none"> <li>Unlined excavations MUST be filled in as soon as possible.</li> </ul>	LOW NEGATIVE
Health hazards for construction workers	Possible exposure of employees to hazardous substances such as human pathogens during the decommissioning phase due to exposure to methane gas or inappropriate procedures when handling of human waste.	<u>Short-term</u>	Localised	<i>Possible</i>	<i>Severe</i>	HIGH	<ul style="list-style-type: none"> <li>Ensure all staff are adequately trained to handle hazardous material.</li> <li>Construction workers must wear protective gear in line with Health and Safety regulations.</li> </ul>	MODERATE

## **“NO-GO” alternative**

There are no impacts associated with the “No-go” alternative, but if the project does not proceed:

1. There would be a missed opportunity to improve treatment technology for increased effluent quality discharge.
2. The expansion of St Patrick’s Hospital and its function to provide health care services and training would be hampered.

PUBLIC REVIEW

## APPENDIX B - I&AP REGISTER & PUBLIC PARTICIPATION SUPPORTING DOCUMENTS

In terms of the EIA Regulations (2010) (also refer to Section 54-57):

**31(2)** An environmental impact assessment report must contain all information that is necessary for the competent authority to consider the application and to reach a decision contemplated in regulation **35**, and must include—

- (e) Details of the public participation process conducted during the EIR phase including:
  - i. Steps undertaken in accordance with the plan of study;
  - ii. A list of persons, organisation and Organs of State that were registered as interested and affected parties;
  - iii. A summary of comments received from, and a summary of issues raised by registered interested and affected parties, the date of receipt of these comments and the response of the EAP to those comments; and
  - iv. Copies of any representations, community meetings and comments received from registered interested and affected parties.

In line with the above-mentioned legislative requirement, this chapter of the draft EIR provides the details of the public participation process conducted for the St Patricks Hospital WWTW.

A list of stakeholders notified and registered I&APs is presented in table below.



## List of registered persons, organisations and organs of state

Organisation	Name	E-mail	Tel	Postal address
<b>Stakeholders</b>				
SAHRA	M Galimberti	mgalimberti@sahra.org.za		
ECPHRA	M L Zote	mlzote@ecphra.org.za	(043) 642 2811	No 74 Alexandra Road, King Williams Town, 5600
DEDEAT	S Spotsi	stanford.spotsi@deaet.ecape.gov.za	(039) 256 0229	Private Bag X3513, Kokstad, 4700
	N Mfingwana	ntlaha.mfingwana@deaet.ecape.gov.za	(039) 256 0229	Private Bag X3513, Kokstad, 4700
Department of Water Affairs	L Jack	jackL@dwa.gov.za	(043)7010291	PO Box 7019, East London, 5200
	MN Mgca	mgcan@dwa.gov.za		
Mbizana LM (Ward 1 councillor)	N Kwelemtini	zamazingwa@ovi.com	(072) 527 7960 / (083) 619 6458	PO Box 12, Bizana, 4800
Mbizana LM (Ward 3 councillor)	N Madikizela		(072)5588373	
Mbizana LM Manager	S Thobela	sthobela@mbizana.org.za	(039) 251 0126	PO Box 12, Bizana, 4801
Alfred Nzo DM Municipal Manager	M Moyo		(039) 254 5002	Private Bag X511, Mount Ayliff, 4735
Alfred Nzo DM Environmental Manager	B Khathali	KhathaliB@andm.gov.za	(039)254 5089	
<b>Surrounding landowners</b>				
Bizana Senior Secondary School	D Phephu	dphephu@gmail.com	(039)2510384	
Bizana Village Junior Secondary School	Mr Jenkins	vuyomsa@webmail.co.za	(078)3155500	
Bizana Stadium	Mr Mazingisa	mazingisab@mbizana.org.za	(082)7463725	
<b>I&amp;AP register</b>				
Jabulani Ngubeni		jiyanamagadlela@gmail.com	(073)3575837	PO Box 210432, Bizana, 4800

## Issues raised by I&APs

Various issues were raised by Mr Jabulani Ngubeni during the public review period. These issues and the EAP and/or proponent response are detailed in the Issues and Responses Trail below.

ISSUES	RESPONSE
<b>A. PROXIMITY OF THE EXISTING AND THE NEW PROPOSED OXIDATION PONDS</b>	
<p>The ponds are near or close to:</p> <ol style="list-style-type: none"> <li>1. Erven 132 to 152, registered property in the municipality of Mbizana which includes Bizana Junior Secondary School (140 &amp; 141). The school has a day population of 1246 persons.</li> <li>2. Bizana S.S.S with a day population of 1864 persons.</li> <li>3. An undeveloped site which is reserved for development of Bizana Village Junior Secondary School. This site lies adjacent to the Senior Secondary School which is developed.</li> <li>4. The location of Didi, population undetermined.</li> </ol>	<p>Noted. This information will be used to ensure that impacts to these areas are minimised. We note that Erf 152 is the Hospital.</p> <p>Please see cadastral map.</p> <ul style="list-style-type: none"> <li>• Existing ponds are near to, but the new proposed site will be placed further and downhill from Hope Street and technically further from the Bizana Junior Secondary School and Bizana Senior Secondary School.</li> <li>• The distance of the new oxidation ponds will be assessed in terms of its distance from the undeveloped site reserved for the Bizana Village Junior Secondary School</li> <li>• The new ponds will be situated closer to the Didi population.</li> </ul>
<b>B. LAND DEVALUATION</b>	
<p>Properties near the oxidation ponds are devalued in each general valuations, the last being 2010. The earth ponds are unsightly and do not beautify any environment.</p>	<p>Noted. We acknowledge that land devaluation can occur due to the unsightliness and odour caused by the oxidation ponds. It is anticipated that the old ponds will be moved and replaced with the new hospital buildings and new ones will be situated further from Hope Street. This might positively impact on the land valuation.</p>
<b>C. EFFECTS OF THE OXIDATION PONDS</b>	
<p>Community is adversely affected by</p> <ol style="list-style-type: none"> <li>i. Offensive smells</li> <li>ii. Fly and mosquito infestations and other biting insects</li> <li>iii. Invasion by vermin such as rodents (rats &amp; mice) and snakes</li> </ol>	<p>Noted. These issues will be included as impacts and incorporated in the EIR (Environmental Impact Report) Phase. Such issues are typically associated with Waste Water Treatment Works (WWTW) and are prevalent when WWTW are not operating properly.</p>
<b>D. EFFECTS ON HEALTH</b>	
<ol style="list-style-type: none"> <li>i. Diarrhoea</li> <li>ii. Helminthes</li> <li>iii. Itches from insect bites</li> <li>iv. Other relevant ailments</li> </ol>	<p>The risk for downstream water users has been acknowledged.</p>
<b>E. SAFETY ISSUES</b>	
<p>What safety measures will be taken in respect of?</p> <ol style="list-style-type: none"> <li>i. Breakdown of the system</li> <li>ii. In the event of overflows or surges</li> <li>iii. In the event of floods</li> </ol>	<p>All these elements have been incorporated into the engineering design. Storage capacity, technical complexity, skills capacity and energy reliance are all critical factors when considering the design or treatment technology for a WWTW.</p>
<b>F. SUGGESTIONS</b>	
<p>I urge the District municipality (Alfred Nzo), Mbizana local Municipality, Department of Public</p>	<p>Noted. Although this may be the ideal scenario, in the interim St Patricks Hospital will be</p>

## Comments received from stakeholders and I&APS

### DEA Acknowledgement of receipt of waste management forms



environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447, PRETORIA, 0001 • Fedsure Building, 315 Pretorius Street, PRETORIA

Ref No.: 12/9/11/L998/1

Enquiries: Mr. Lucas Mahlangu

Tel: (012) 310 3536 Fax: (012) 310 3753. Email: [lmahlangu@environment.gov.za](mailto:lmahlangu@environment.gov.za)

[www.environment.gov.za](http://www.environment.gov.za)

Coastal & Environmental Services  
P O Box 8145  
East London  
5210

Fax No. (043) 742 3306

Attention: Daisy Koisedi

**APPLICATION FOR A WASTE MANAGEMENT LICENCE IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (NO. 59 OF 2008): PROPOSED EXPANSION, WASTE WATER TREATMENT WORKS AND CONSTRUCTION OF FACILITIES FOR ST PATRICKS HOSPITAL (EASTERN CAPE DEPARTMENT OF HEALTH), EASTERN CAPE PROVINCE.**

The Department confirms having received waste license application form for the abovementioned activity on 07 August 2012.

You are hereby reminded to comply with the requirements: **Regulations 67 of GN No. R 543** with regard to the period allowed for complying with the requirements of the regulations, and **Regulations 56 and 57 of GN No. R 543** with regard to the allowance of a commenting period for interested and affected parties on all reports submitted.

Your application has been assigned with a reference number (12/9/11/L998/1). Kindly quote this reference number in any future correspondence in respect of your application. The responsible officer for the processing of your application is Ms Nnditsheni Ramuhulu who can be contacted on (012) 310 3029.

Please draw the applicant's attention to the fact that the activity must not commence prior to a waste license being granted by the Department.

Should you require further detailed information, please do not hesitate to contact this office.

Yours sincerely

Ms Nolwazi Cobbinah  
Acting Deputy Director-General: Chemicals and Waste Management  
Department of Environmental Affairs

Letter signed by: Mr. Lucas Mahlangu

Designation: Deputy Director: Systems Management

Date: 28/08/2012

## Acknowledgement of receipt of decommissioning forms



### environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447, PRETORIA, 0001· Fedsure Building, 315 Pretorius Street, PRETORIA

Ref No.: 12/9/11/L999/1

Enquiries: Mr. Lucas Mahlangu

Tel: (012) 310 3536 Fax: (012) 310 3753. Email: [lmahlangu@environment.gov.za](mailto:lmahlangu@environment.gov.za)  
[www.environment.gov.za](http://www.environment.gov.za)

Coastal & Environmental Services  
P O Box 8145  
East London  
5210

Fax No. (043) 742 3306

Attention: Daisy Kotsedi

**APPLICATION FOR A WASTE MANAGEMENT LICENCE IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (NO. 59 OF 2008): PROPOSED DECOMMISSIONING FOR ST PATRICKS HOSPITAL (EASTERN CAPE DEPARTMENT OF HEALTH), EASTERN CAPE PROVINCE.**

The Department confirms having received waste license application form for the abovementioned activity on 07 August 2012.

You are hereby reminded to comply with the requirements: **Regulations 67 of GN No. R 543** with regard to the period allowed for complying with the requirements of the regulations, and **Regulations 56 and 57 of GN No. R 543** with regard to the allowance of a commenting period for interested and affected parties on all reports submitted.

Your application has been assigned with a reference number (12/9/11/L999/1). Kindly quote this reference number in any future correspondence in respect of your application. The responsible officer for the processing of your application is Ms Nnditsheni Ramuhulu who can be contacted on (012) 310 3029.

Please draw the applicant's attention to the fact that the activity must not commence prior to a waste license being granted by the Department.

Should you require further detailed information, please do not hesitate to contact this office.

Yours sincerely

  
Ms Nolwazi Cobbinah

Acting Deputy Director-General: Chemicals and Waste Management  
Department of Environmental Affairs

Letter signed by: Mr. Lucas Mahlangu

Designation: Deputy Director: Systems Management

Date: 2012/08/28

## Acknowledgement of receipt for Scoping Report



### environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447, PRETORIA, 0001· Fedsure Building, 315 Pretorius Street, PRETORIA

Ref No: 12/9/11/L998/1

Enquiries: Ms Nnditsheni Ramuhulu

Tel: (012) 310 3029 Fax: (012) 310 3753 Email: NRRamuhulu@environment.gov.za  
www.environment.gov.za

Coastal and Environmental Services  
P O Box 8145  
EAST LONDON  
5210

Fax: (043) 742 3306

Attention: Daisy Kotsedi

#### **ACKNOWLEDGEMENT RECEIPT OF FINAL SCOPING REPORT FOR THE PROPOSED WASTE WATER TREATMENT WORKS FOR ST PATRIK, EASTERN CAPE PROVINCE.**

The Department confirms having received the above-mentioned Final Scoping Report for the abovementioned activity on 14 September 2012.

The Department will be evaluating the report in order to ascertain the documents comply with the minimum requirements of the Final Scoping Report (FSR) Regulations, 2010.

You are hereby reminded that the activity may not commence prior to Waste Management Licence being granted by the Department.

Yours sincerely

**Ms Nolwazi Cobbinah**  
Acting Deputy Director-General  
Chemicals and Waste Management  
Letter signed by: Ms Nnditsheni Ramuhulu  
Designation: Environmental Officer: Specialised Production  
Date: 26/09/2012

## Acknowledgement of receipt from DEDEAT

26/09/2012 11:49 tukutezi

FA0

P.002/002



Province of the  
**EASTERN CAPE**  
DEPARTMENT OF ECONOMIC  
DEVELOPMENT  
ENVIRONMENT AND TOURISM

P/Bag X3613 KOKSTAD  
South Africa, 4700  
Direct Fax: 086 663 3269  
Web: [www.deaet.ecprov.gov.za](http://www.deaet.ecprov.gov.za)  
Email: [Siyasanga.tukutezi@deaet.ecape.gov.za](mailto:Siyasanga.tukutezi@deaet.ecape.gov.za)

Attention : Daisy Kotsedi  
E A P : CES  
Telephone: 043 742 3302  
Fax : 043 742 3308  
Date : 13/09/2012

Enquiries: S. Tukutezi  
Ref: AN//A, 3(19)/B,4(7),(11)/L001/12

Dear Sir / Madam

**APPLICATION FOR WASTE MANAGEMENT LICENCE INTERMS OF THE NATIONAL MANAGEMENT WASTE ACT 2008 (NO. 59 OF 2008) FOR THE PROPOSED DECOMMISSIONING OF ST PATRICKS HOSPITAL AND WASTE WATER TREATMENT WORKS OF ST PATRICKS HOSPITAL, IN MBIZANA.**

We confirm having received the above mentioned Application and the Scoping Report. This has been assigned a reference number: **AN//A, 3(19)/B,4(7),(11)/L001/12** in terms of National Environmental Management Waste Act 2008 (No. 59 of 2008). However please be advised that the activity may not commence prior the permit or licence issued by this Department.

Kindly quote this reference in any future correspondences in respect of this application.

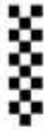
Yours faithfully

S. Tukutezi

Environmental Officer: EIM - Environmental Affairs - Alfred Nzo Region



## DEA Response to the Scoping Report



### environmental affairs

Department  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

Private Bag X 447, PRETORIA, 0001· Fedsure Building, 315 Pretorius Street, PRETORIA

Ref No: 12/9/11/L998/1

Enquiries: Ms Nnditsheni Ramuhulu

Tel: (012) 310 3029; Fax: (012) 310 3753 Email: N.Ramuhulu@environment.gov.za  
www.environment.gov.za

Coastal and Environmental Services  
P O Box 8145  
EAST LONDON  
5210

Fax: (043) 742 3306

Attention: Daisy Kotsedi

### ACCEPTANCE OF FINAL SCOPING REPORT FOR THE PROPOSED WASTE WATER TREATMENT WORKS FOR ST PATRIK, EASTERN CAPE PROVINCE.

The Department confirms having received the above-mentioned Final Scoping Report for the abovementioned activity on 14 September 2012.

The Department has evaluated the submitted Final Scoping Report and is satisfied that the documents are in compliance with the minimum requirements of the Scoping Report as required by regulation 28 of GN No.R.543 of 18 June 2010. The Final Scoping Report is hereby accepted by the Department.

You may proceed with the Environmental Impact Assessment process in accordance with the tasks contemplated in the Plan of Study for Environmental Impact Assessment as required in terms of the EIA Regulation, 2010.

You are hereby reminded that the activity may not commence prior to Waste Management Licence being granted by the Department.

Yours sincerely

Ms Nolwazi Cobbinah

Acting Deputy Director-General

Chemicals and Waste Management

Letter signed by: Ms Nnditsheni Ramuhulu

Designation: Environmental Officer: Specialised Production

Date: 29/10/2012

## Environmental Impact Report phase: Public Participation

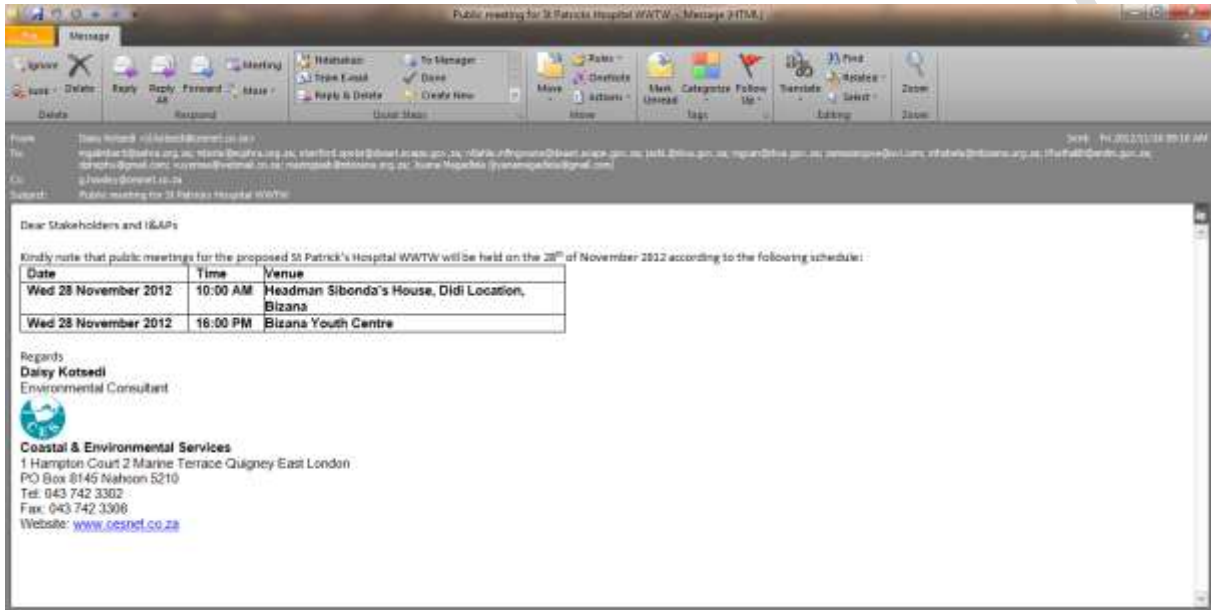
### Comments and response trail

None as yet

### Notifications

Notification of all stakeholders and I&AP's of the EIR

### Public Meeting Notification via email



The screenshot shows an email client interface with the following details:

- Subject:** Public meeting for St Patrick's Hospital WWTW
- Dear Stakeholders and I&APs**
- Text:** Kindly note that public meetings for the proposed St Patrick's Hospital WWTW will be held on the 28<sup>th</sup> of November 2012 according to the following schedule:
- Table:**

Date	Time	Venue
Wed 28 November 2012	10:00 AM	Headman Sibonda's House, Didi Location, Bizana
Wed 28 November 2012	16:00 PM	Bizana Youth Centre
- Signature:** Daisy Kotsedi, Environmental Consultant
- Contact Info:** Coastal & Environmental Services, 1 Hampton Court 2 Marine Terrace Clugney East London, PO Box 8146 Nahson 5210, Tel: 043 742 3302, Fax: 043 742 3306, Website: [www.cestel.co.za](http://www.cestel.co.za)





Proposed Sanitation Project – St Patrick's Hospital in Bizana, Eastern Cape, (Mbizana Local Municipality, Alfred Nzo District Municipality)  
REF No. 12/9/11/L999/1 and 12/9/11/L998/1

**NOTICE OF PUBLIC MEETINGS  
ENVIRONMENTAL IMPACT ASSESSMENT**

Notice is hereby given in terms of Chapter 6 of Government Notice No. R543 under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) and the National Environmental Management: Waste Act (Act 59 of 2008) (NEM: WA), of the intent hold public meetings relating to the above mentioned project according to the following schedule.

<b>DATE</b>	<b>TIME</b>	<b>VENUE</b>
Wed 28 November 2012	10:00 AM	Headman Sibonda's House, Didi Location, Bizana
Wed 28 November 2012	16:00 PM	Bizana Youth Centre

For further information or directions contact  
Ms Daisy Kotsedi, PO Box 8145, East London, 5210, Tel: 043  
742 3302, Fax: 043 742 3306  
e-mail: [d.kotsedi@cesnet.co.za](mailto:d.kotsedi@cesnet.co.za)

Date of advert: 14 November 2012

## **Public meeting**

Public meetings were held on the 28 November 2012 at Headman Sibonda's House and Bizana Youth Centre.

### **Minutes of the meeting held on 28 November 2012**

#### **Attendance register**

#### **Issues raised at public meeting**

#### **CES's response**

PUBLIC REVIEW

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