SCOPING REPORT

ST PATRICK'S HOSPITAL WASTE WATER TREATMENT WORKS

Prepared for:	Prepared by:
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June 2012

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REVISIONS TRACKING TABLE

Project Name: St Patrick's Waste Water Treatment Works
Report/Chapter Title: Draft Scoping Report Volume: 1

Name	Reviewed/edited	Date	Comments
Daisy Kotsedi	Scoping report production	8 June 2012	
Greer Hawley	Scoping review	14 June 2012	
Alan Carter	Scoping review	15 June 2012	

THE PROJECT TEAM

Dr Alan Carter
Dr Greer Hawley
Mr Lungisa Bosman
Dr Cherie-Lynn Mack
Ms Daisy Kotsedi

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1 INTRODUCTION

Content of scoping reports
29. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –
(a) details of –
(i) the EAP who prepared the report; and
(ii) the expertise of the EAP to carry out scoping procedures;

1.1 Environmental Authorisation

The proposed activity is 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 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:

GN 718 (A) (19): "The expansion of facilities of or changes to existing facilities for any process or activity, 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."

GN 718 Category A (20): "Decommissioning of activities in Category A."

GN 718 (B) (7): "The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more"

…and **GN 718 Category B (11)**: "The construction of facilities for activities listed in Category B".

The proponent is therefore initially required to submit a report detailing the scoping phase (Scoping Report), followed by a report detailing the EIA phase (EIA Report). The competent authority will issue a decision subsequent to their review of the EIA Report.

1.2 Scoping Phase

The scoping phase is designed to determine the "scope" of the subsequent Environmental Impact Assessment (EIA), conducted in fulfilment of the application for authorisation.

The scoping procedure identifies potential:

- Issues
- Impacts
- Alternatives

An integral part of the scoping phase is the initial public participation process. Regulatory steps to ensure public notification, information, engagement and involvement have been carried out.

This report fulfils the requirement of the EIA Regulations (2010) for the documentation of the scoping phase.

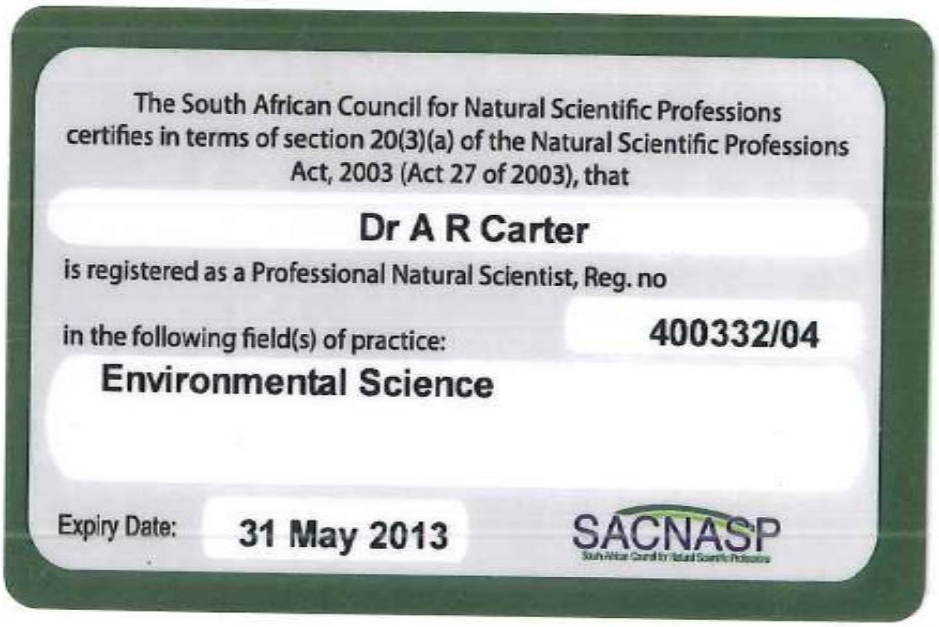
1.3 Details and Expertise of Environmental Assessment Practitioner (EAP)

In terms of Section 17 of the EIA Regulations (2010), an EAP must have expertise in conducting environmental impact assessments, including knowledge of the Act, these Regulations and any guidelines that have relevance to the proposed activity.

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 (both 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 dedicated 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-coordinating 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 has participated in the development of the Coastal Management Act and has extensive knowledge and experience with projects on the Wild Coast. Alan will be responsible for the review of all report writing.


The South African Council for Natural Scientific Professions
certifies in terms of section 20(3)(a) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), that

Dr A R Carter

is registered as a Professional Natural Scientist, Reg. no **400332/04**

in the following field(s) of practice:

Environmental Science

Expiry Date: **31 May 2013**

SACNASP

The Interim Certification Board

for

Environmental Assessment Practitioners

of

South Africa

Alan Robert Carter

was certified as an

ENVIRONMENTAL ASSESSMENT PRACTITIONER

on this 1st day of March 2012

Chairperson

Secretary

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 The Proponent

The proponent in this application is:

Department of Public Works
Contact person: Vukani Ntsholo
Address: Private Bag X3913, Port Elizabeth, 6056
Tel:
Fax:

The project 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

1.5 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 Environmental Affairs: Alfred Nzo Region (DEA)
Regional Manager: Mr. N. Mfingwana
Address: Private Bag X3513, Kokstad, 4700
Tel: 039 256 0229
Fax: 086 613 6312

Department of Environmental Affairs: Waste Management
Regional Manager: N. Musekene
Address: Private Bag X313, Pretoria, 0001
Tel: 012 336 7739
Fax:

2 DESCRIPTION OF PROPOSED ACTIVITY

Content of scoping reports
28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(b) a description of the proposed activity and of any feasible and reasonable alternatives that have been identified;

2.1 Detailed Description of proposed activity

Mbizana Local Municipality consists of 246 156 people and 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 (Figure 2.1). 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.

Figure 2.1 Existing oxidation ponds at St Patrick's Hospital. Left: inlet; Right: an air bubble developed indicating leakage in the lining of the pond.

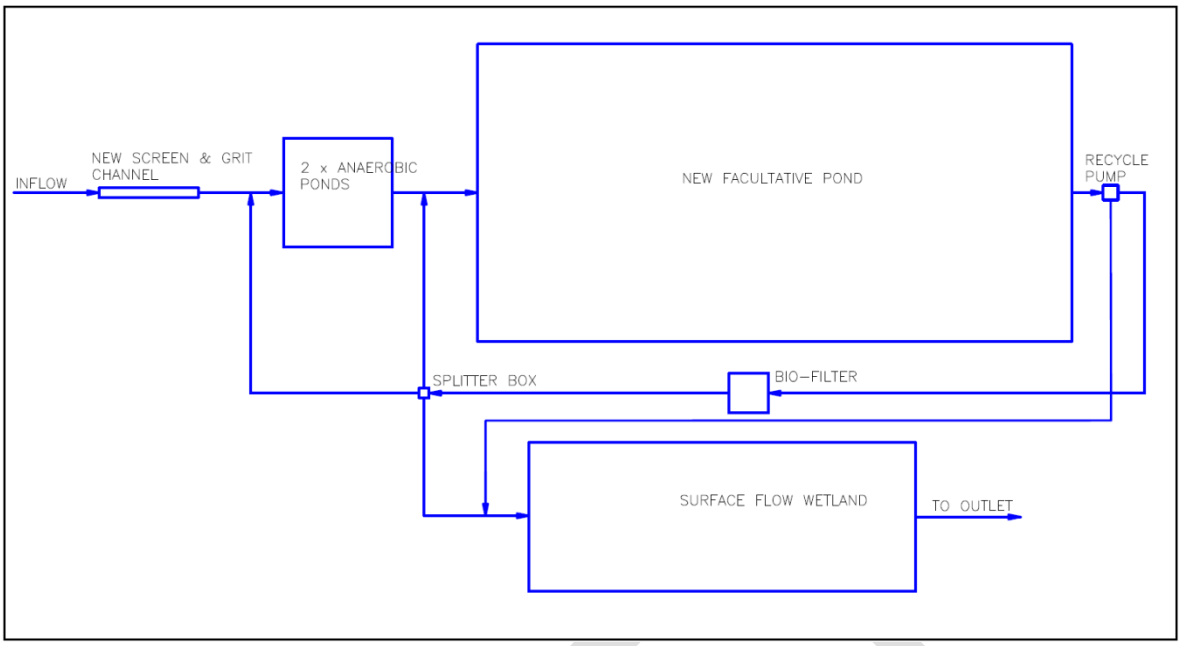


Figure 2.2 The proposed WWTW at St Patrick's Hospital.

2.2 Feasible and Reasonable Alternatives

One of the objectives of an EIA is to investigate alternatives to the proposed project. There are two types of alternatives - Fundamental Alternatives and Incremental Alternatives.

2.2.1 Fundamental Alternatives

Fundamental alternatives are developments that are substantially different from the proposed project and usually involve a different type of development on the proposed site, or a different location for the proposed development or activity.

Alternative development

St Patrick's Hospital is in need of a functional WWTW that will service the hospital due to the expansion of hospital facilities. Since the site is already a functioning WWTW, any fundamental alternative of a development other than to construct and operate a WWTW is therefore not desirable in this case, and will not be considered further in the EIA.

Alternative location

The main determining factors for selecting the proposed location were:

- The existence of the current WWTW facility as it is already impacted and designated for use as a sewage waste treatment facility; existing infrastructure can be easily incorporated into the new WWTW design;
- Flow direction in order to gravity feed sewage from the whole hospital site into the WWTW system, thereby minimising the need for pump stations

Alternative locations will, therefore not be assessed. The alternative locations are dictated by the necessity to gravity feed sewage down towards a WWTW, thereby avoiding pump-stations as far as possible.

No-Go development

The EIA will examine factors that may preclude the development of a new WWTW (i.e. the "No Go" option).

2.2.2 Incremental Alternatives

Incremental alternatives are 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, including:

- The design or layout of the activity;
- The technology to be used in the activity, and;
- The operational aspects of the activity.

Alternative options for the treatment of waste water (sewage) are presented below. These alternatives are to be considered in the EIA process and are as follows:

1. Oxidation ponds (preferred alternative)
2. New activated sludge treatment system

On-going engagement with Department of Water Affairs (DWA) will be undertaken in order to determine the preferred alternative. Currently, the Scoping Report describes both these alternatives as feasible options.

Alternative 1: Oxidation Ponds

This technique relies on micro-organisms and algae to breakdown organic nutrients and inorganic nutrients respectively. The system is extremely robust as it can accept a range of sewage types and sporadic quantities, although it is only appropriate for small sewage inflows. In some cases, however, it does not meet the standards required for **effluent discharge** but typically oxidation ponds DO NOT discharge into any water courses. The treatment capacity of the existing oxidation ponds will not manage with the anticipated increase in sewage production due to the expansion of facilities at St Patrick's Hospital. Therefore a new pond is needed. An evaporation pond or irrigation option is being investigated for effluent disposal.

Alternative 2: New Activated Sludge WWTW facility

An activated sludge facility, either conventional or Sequence Batch Reactor (SRB) type, would be located on the existing footprint of the oxidation pond and will consist of anaerobic and aerobic digestion processes, a settling tank and a maturation pond.

The raw sewage will gravitate into the new WWTW and be fed into a reactor of the activated sludge plant where it mixes with the activated sludge to initialise aerobic treatment. The mixture will then enter a clarifier where the dense particles (solids) settle out from the effluent. From the clarifier, a portion of the solids (activated sludge) will be fed back into the aerobic digester. Most of the sludge will be transferred into sludge lagoon or drying beds, and the effluent will be transferred into the maturation pond.

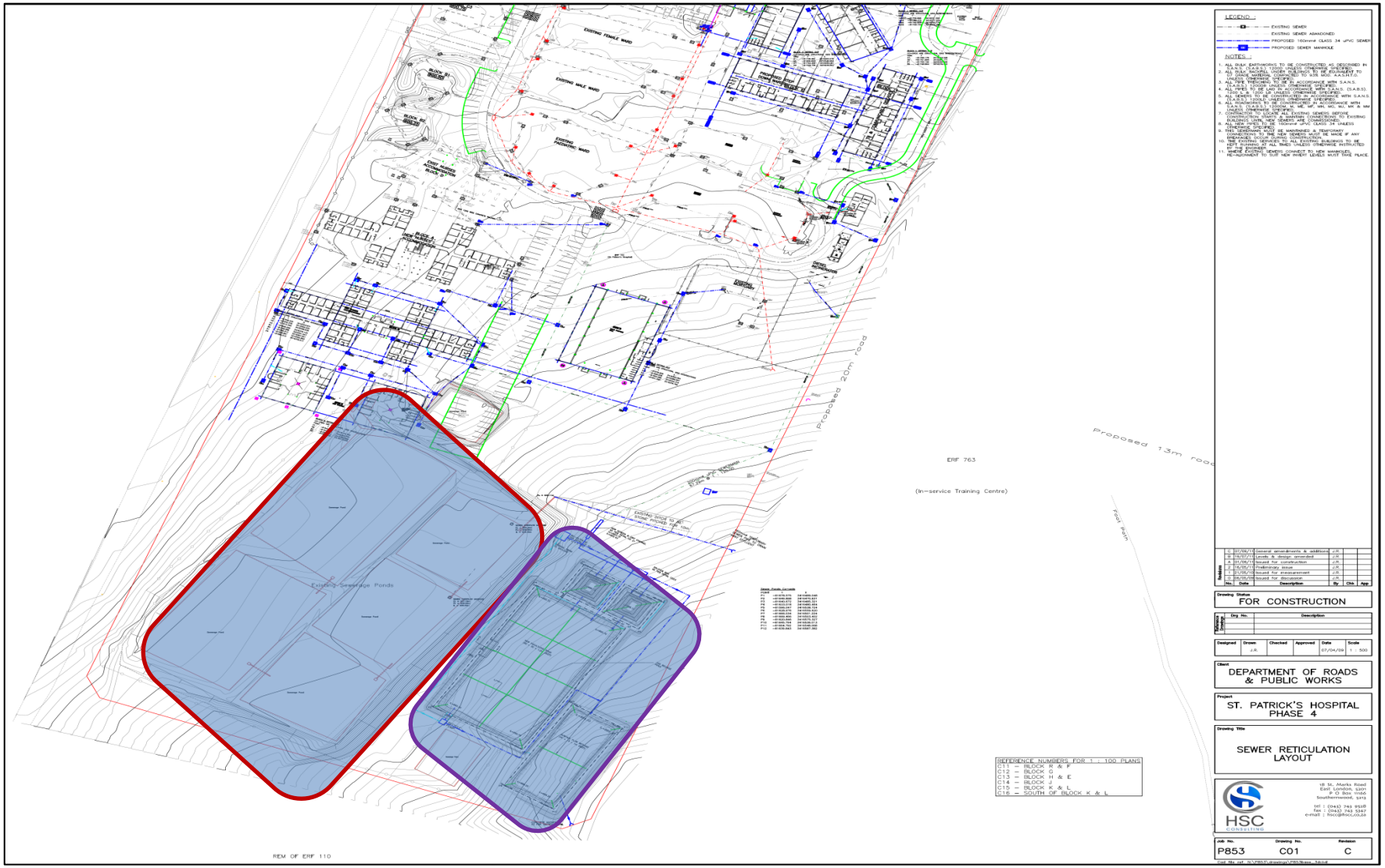


Figure 2.2 Design layout of the existing (red square) and proposed oxidation ponds (purple square).

2.3 Property Description and Location of Activity

Content of scoping reports
28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(d) a description of the property on which the activity is to be undertaken and the location of the activity on the property
(i) a description of the need and desirability of the proposed activity;

2.3.1 Property Location

St Patrick's Hospital and the associated WWTW in the town of Bizana with GPS co-ordinates: S 30˚ 51' 59.42'', E 29˚ 51' 11.42'' (Figure 2.3).

2.3.2 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 2.3 Locality of the existing and proposed new WWTW facility for St Patrick's Hospital. The current oxidation pond system is indicated by the orange circle.

2.4 Motivation for Activity

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. 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.

2.5 Timing of the activity

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

3 RELEVANT LEGISLATION AND GUIDELINES UTILISED IN THE COMPILATION OF THIS SCOPING REPORT

Content of scoping reports
29. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(f) an identification of all legislation and guidelines that have been considered in the preparation of the scoping report;

(2) In addition, a scoping report must take into account any guidelines applicable to the kind of activity which is the subject of the application.

The table below summarises the legislation and policy guidelines that are relevant to the new proposed St Patrick's Hospital Waste Water Treatment Works.

Table 3.1: Relevant legislation and policy guidelines

Title of legislation, policy or guideline	Section	Implications for proposed St Patrick's Hospital WWTW Project
Constitution (Act 108 of 1996)	s24	• Responsible for ensuring the proposed development does not infringe on the right for all citizens to live in a safe and healthy environment.
National Environment Management Act (107 of 1998)	s2, s23, s24, s24-1, s28, s29, s30, s31, s32, s33	• Apply the NEMA principles. • Application of fair decision making and conflict management procedures provided for in NEMA. • Application of the principles of Integrated Environmental Management and the consideration, investigation and assessment of the potential impact of existing and planned activities on the environment; socio-economic conditions; and the cultural heritage. In terms of s28, every person (including the Department of Public Works (the proponent) and Department of Health) who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent pollution or rectify the damage caused. • The Department of Health and Department of Public Works may enter into environmental management co-operation agreements with any person or community for the purpose of promoting compliance with the principles of the Act.
EIA Regulations 2010	GN 543, 544 and 545	The completion of both Scoping and EIA, with the submission of both a Scoping Report and an Environmental Impact Report and will include the assessment of all listed activities.
National Environmental Management: Biodiversity Act (10 of 2004)	s50-62, s63-77, s75-4	The Department of Health and Department of Public Works may not carry out a restricted activity involving a specimen of a listed threatened or protected species without a permit (s56-1). The Department of Health and Depart of Public Works must prepare an invasive species monitoring, control and eradication plan for land/activities under their control, as part of their environmental plans in accordance with section 11 of NEMA.
National Environmental Management: Waste Act (59 or 2008)	Section 23	• Waste management licence is required.

Title of legislation, policy or guideline	Section	Implications for proposed St Patrick's Hospital WWTW Project
National Water Act (36 of 1998)	s2, s 12-20, 21	• The responsible person is responsible for taking reasonable measures to prevent pollution of water resources that it owns, controls occupies or uses the land in question. • The responsible person is required to remedy situation where pollution of a water resource occurs following emergency incident and where it is responsible for the incident or owns or is in control of the substance involved. • The responsible person must take all reasonable measures to minimise the impacts of the incident, undertake clean-up procedures, remedy the effects of the incident and take measures as directed by the catchment agency. • A water use must be licensed if triggered by activities in section 21a-k.
National Heritage Resource Act (25 of 1999)	S27-1, s27-8, subsection 3(3)	Protection of natural and cultural heritage sites into the layout and operation of the project, where applicable. Ensuring compliance with NHRA.

4 DESCRIPTION OF THE RECEIVING ENVIRONMENT

Content of scoping reports
28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(d) a description of the environment that may be affected by the activity and the manner in which the activity may be affected by the environment.

4.1 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.

4.2 Physical (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.

4.3 Ecological Desktop assessment

4.3.1 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 *Themedra 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 (Mucina & Rutherford, 2006). This vegetation type has been assigned a conservation status of **ENDANGERED**, one of the most threatened vegetation types in KwaZulu-Natal, with only a small fraction statutorily conserved in reserves such as Ngeli, Impendle and Blinkwater.

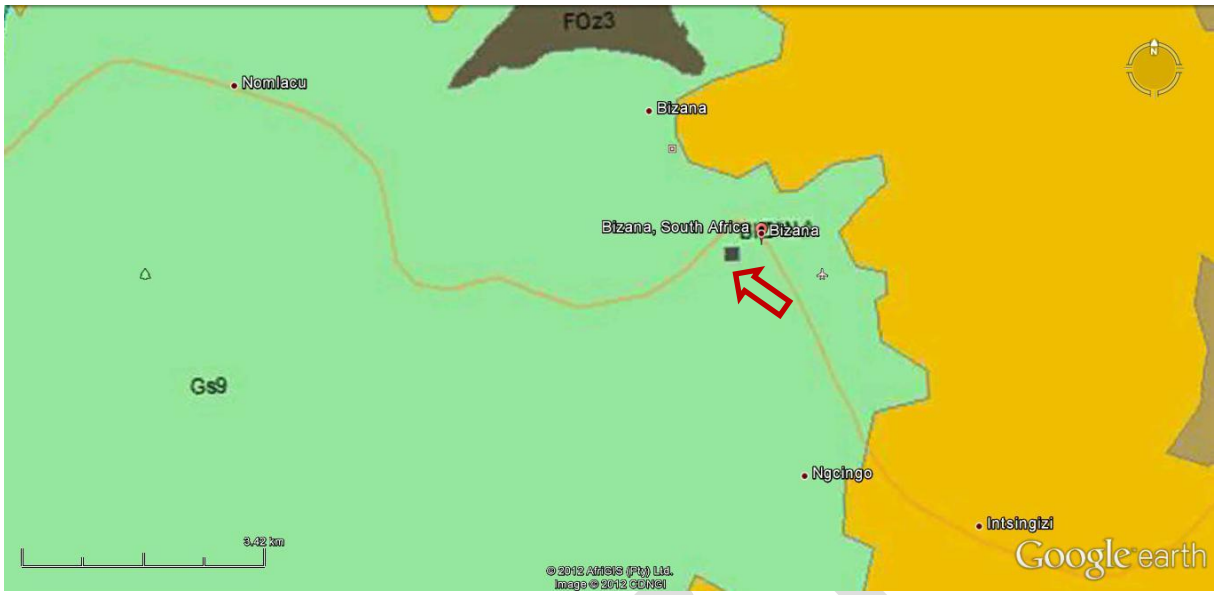


Figure 4.2 The study site (red arrow) falls within the Gs9 (Midlands Mistbelt Grassland).

4.3.2 Eastern Cape Biodiversity Conservation Plan (ECBCP)

The ECBCP is an attempt at detailed, low-level conservation mapping for land-use planning purposes. Specifically, the aims of the Plan were to map critical biodiversity areas through a systematic conservation planning process. The current biodiversity plan includes the mapping of priority aquatic features, land-use pressures, critical biodiversity areas and develops guidelines for land and resource-use planning and decision-making.

The main outputs of the ECBCP are "critical biodiversity areas" or CBAs, which are allocated the following management categories:

1. Maintain in a natural state
2. Maintain in a near-natural state

The ECBCP maps CBAs based on extensive biological data and input from key stakeholders. The ECBCP, although mapped at a finer scale than the National Spatial Biodiversity Assessment (Driver et al., 2005) is still, for the large part, inaccurate and "coarse". Therefore it is imperative that the status of the environment, for any proposed development MUST first be verified before the management recommendations associated with the ECBCP are considered (Berliner and Desmet, 2007).

The study area falls under two BLMC classes. A small portion falls within BLMC 1 which is classified as "maintain in natural state" and BLMC 4 which covers the majority of the study site is classified as "cultivated land" (Figure 4.3). The recommended land use objective for the "maintain in natural state" classification is to maintain biodiversity in as natural state as possible and for no biodiversity loss. The recommended land use objective for the "cultivated land" classification involves managing biodiversity for sustainable development.

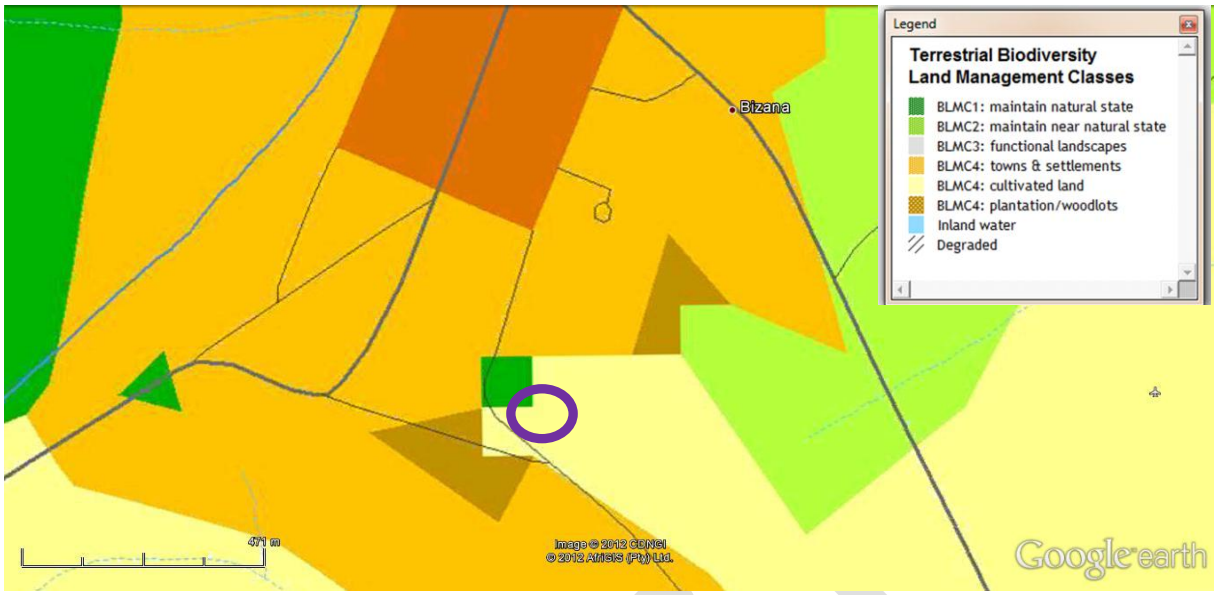


Figure 4.3 ECBCP land-use map. The purple circle represents the proposed location for the activity located mainly in BLMC 4 and a small area of BLMC 1.

4.4 Socio-economic Environment

Agriculture is the primary active sector in the local economy of Mbizana Local Municipality (MLM). Other primary sectors such as mining are not performing optimally and secondary sectors such as manufacturing and tourism are also very weak and underdeveloped. Mbizana Local Municipality has 57.2 % unemployment rate and this is due to the lack of contribution to employment by primary sectors.

4.5 Site observations

The significance of environmental impacts as a result of the proposed WWTW development needs to be assessed relative to the surrounding environment, as well as the state of that environment. In addition, site observations serve to identify any environmentally sensitive areas.

This section provides a brief description of the receiving environment and neighbouring land-uses.

4.5.1 Surrounding land-uses

The surrounding land-uses that were identified include (Figure 4.4 and 4.5):

- Agriculture
- Regional road
- Bizana CBD
- Residential area

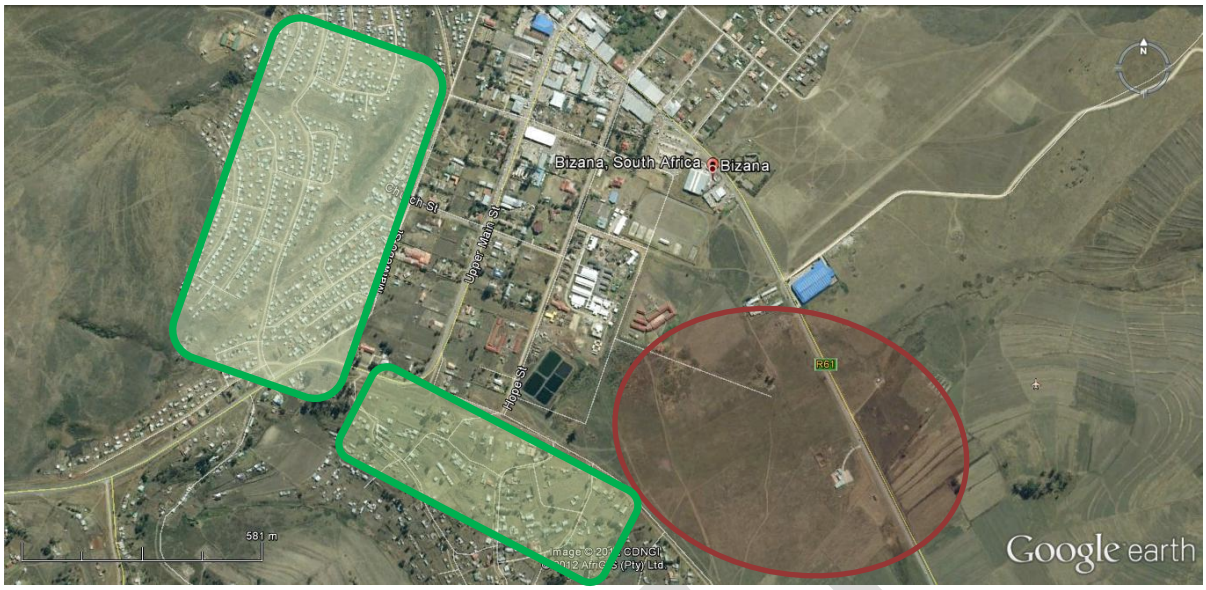


Figure 4.4 Surrounding land-uses. Residential area = green shaded area; communal livestock grazing = Red shaded area.

Figure 4.5 Surrounding land-use; residential area and proposed new Bizana bypass.

4.5.2 Vegetation

There is no vegetation on the existing WWTW site as it has already been transformed for the purposes of the oxidation pond (Figure 4.6). 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 suspended due to issues with sanitation.

Figure 4.6 Onsite vegetation (top) and excavated site (bottom).

5 IDENTIFICATION OF POTENTIAL IMPACTS RESULTING FROM THE PROPOSED ACTIVITY

Content of scoping reports
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(g) a description of environmental issues and potential impact, including cumulative impact, that have been identified.

5.1 Alternatives

Alternative A: Upgrading the Oxidation Ponds
The treatment capacity of the existing oxidation ponds is above that which is required due to the expansion of facilities at St Patrick's Hospital and will not be sufficient, therefore require an upgrade to 0.1 Mℓ/day.

Alternative B: New Activated Sludge WWTW
A new activated sludge WWTW will be constructed on the footprint of the existing pond WWTW.

Alternative "No-go"
The Environmental Impact Assessment (EIA) regulations require the consideration of the no-go alternative, even when the no-go alternative is not a feasible or reasonable option. The evaluation of this alternative will include a discussion on the resulting impacts, both locally and regionally, should no development occur. This forms the baseline study for comparison against the impacts resulting from the proposed activity and alternatives.

5.2 Manner in which Environment may be Affected

Impacts resulting from the upgraded WWTW and the NO-GO alternatives are considered in Table 5.1 below. The activities associated with direct, indirect and cumulative impacts during the Planning and Design, Construction and Operation phases.

Table 5.1 Impacts as identified from the Activities proposed that will be investigated and assessed in the EIA report.

Activity	Issue	Nature of impact	Description of impact
Planning and design	Design capacity and stormwater ingress	Negative	Stormwater surges in the WWTW will result in raw and partially treated sewage overflow.
	Technology employed	Negative	Alternative methods for the treatment of sewage have been explored and will be assessed in further detail in the EIR. The utilisation of an inappropriate sewage treatment mechanism would negatively impact on the long-term feasibility of the project.
	Associated risks with infrastructure	Negative	Electricity disruptions, blockages and a lack of general infrastructural maintenance will result in low quality sewage treatment. Power disruptions will hamper the efficient running of the bioreactor and result in poorly treated effluent. Pipe blockages often result in seepage and contamination of ground and drainage line water sources, which could affect the health and safety of surrounding land and water users.
	Management and on-going Maintenance	Potentially negative	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.
Construction of new waste water treatment works (WWTW)	Biophysical: On site	Negative	The new WWTW plant will have a significantly low site biological impact, as the site has already been impacted.
	Socio-economic	Potentially negative	Possible exposure of employees to hazardous substances could occur during construction and decommissioning should the site not be effectively managed.
	Equipment and hazardous materials	Potentially negative	1. Cement mixing techniques and diesel/oil spillage occurring as a result of poorly maintained machinery can lead to ground and ground water pollution. 2. Inappropriate storage and disposal of building waste materials may pollute the soil and surrounding areas as well as ground water.
	Noise pollution	Negative	The noise created by the construction phase must be limited to the small scale construction and the relatively short duration of construction. Noise pollution is not considered a significant impact.
Operation of new waste water treatment works	Poor maintenance	Potentially negative	If the treatment works are not adequately maintained, effluent of poor quality will be released into the environment, contaminating water sources with nutrients and faecal coliforms.
	Design capacity and stormwater ingress	Negative	Stormwater surges in the WWTW will result in raw and partially treated sewage overflow.

Activity	Issue	Nature of impact	Description of impact
	Poor sludge and screened material management	Potentially negative	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 ground water monitoring	Potentially negative	Poor monitoring of pond leakage and poor maintenance of pond lining could result in sustained groundwater contamination.
	Inappropriate WWTW operation, maintenance and management	Potentially Negative	Should ground and surface water pollution occur due to inadequate maintenance, it may impact negatively on the people of Bizana and land users.
		Potentially negative	Efficient operation of the WWTW may be compromised by the lack of appropriately skilled operators resulting in system failure and odour generation.
		Potentially negative	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.

5.3 Cumulative Impacts

The following cumulative impact will be assessed:

- Activities which are sustained over a period of time, such as pollution of drainage lines with contaminated effluent, may cumulatively cause impacts which will need to be addressed. This may be the case of the old or new WWTW and are considered of equal significance. However the risk of the new WWTW would be lower due to the employment of new components and technology.

5.4 Impact resulting from the NO-GO alternative

The following issues and impacts have been identified with the NO-GO alternative (Table 5.2).

Table 5.2 Impacts associated with the NO-GO alternative.

Issue	Nature of impact	Description of impact
Health issues	Negative	Health issues due to close proximity of current WWTW to future hospital services.
Sewage	Negative	No opportunity for improvement of sewage treatment or effluent disposal.
Infrastructure and energy	Negative	Sewage from lower portion of hospital will require pumping up to existing WWTW, relating additional energy requirements and higher risk of infrastructure failure.
Water pollution	Negative	Surface and groundwater contamination associated with effluent discharge and pond leakage.

5.5 Methodology for Assessing Impacts (including specialist studies or specialised procedures)

A detailed methodology for the assessment of impact significance is provided in the attached Plan of Study for EIA (Chapter 9). The nature of each impact will detail any environmental loss/deterioration and the resulting social impacts.

The assessment will consider the following aspects:

- Temporal scale
- Spatial scale
- Risk or likelihood
- Degree of confidence or certainty
- Severity or benefits
- Significance
- Size, duration and frequency during the design, construction and operation of the facility.

The relationship of the issue to the temporal scale, spatial scale and the severity will be combined to describe the overall significance of the impact.

All feasible alternatives and the "no-go option" will be equally assessed in order to evaluate the significance of "as predicted" impacts (prior to mitigation) and "residual" impacts (that remain after mitigation measures are taken into account). Reasons for the judgement made will be provided where necessary.

6 PUBLIC PARTICIPATION

Content of scoping reports
28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(h) details of the public participation process conducted in terms of regulation **27** (a), including
(i) the steps that were taken to notify potentially interested and affected parties of the application;
(ii) proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the application have been displayed, placed or given;
(iii) a list of all persons or organisations that were identified and registered in terms of regulation **55** as interested and affected parties in relation to the application; and
(iv) a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;
(k) copies of the minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants; and
(l) Any responses by the EAP to those representations and comments and views

6.1.1 Public participation

Public consultation is a legal requirement throughout the EIA process. Developers are required to conduct public consultation throughout the scoping and EIA phases. Formal EIA documents are required to be made available for public review and comment by the proponent, these include the Project Brief, Scoping & Terms of Reference for the EIA, the draft and final EIA reports and the decisions of the Environmental Authority. The method of public consultation to be used depends largely on the location of the development and the level of education of those being impacted on by the project. Required means of public consultation include:

- Site notice/s
- Newspaper advisements
- Information letters (to affected landowner, councillor facilitation) (Proof: email, fax, register letters to DEDEAT, signed receipt from surrounding residents)
- Background Information Document (BID) distribution
- Authority and Stakeholder engagement (DWA & DEDEAT)
- Public meeting (if required)

6.1.2 Site notice

6.1.3 Newspaper advert

Daily Dispatch, Friday, June 15, 2012

Proposed Sanitation Project - St Patrick's Hospital in Bizana, Eastern Cape, South Africa (Mbizana Local Municipality, Alfred Nzo District Municipality, Eastern Cape)

NOTICE OF ENVIRONMENTAL IMPACT ASSESSMENT AND INVITATION TO REGISTER AS AN I&AP

Notice is hereby given in terms of Regulation 54(2) published in Government Notice No. R543 under Chapter 5 of the National Environmental Management Act (Act 107 of 1998) of the intent to submit an Environmental Impact Assessment to the National Department of Environmental Affairs (DEA) for a waste licence application.

Proponent and Location:
Department of Public Works is proposing a new oxidation pond and decommissioning of old ponds at St Patrick's Hospital in Bizana, Eastern Cape.

Project Activities:
The proposed project entails the construction of new ponds and bio-filter first, transfer the sludge and effluent from the existing ponds into the new works and then decommission the existing ponds.

Listed Activities:
The proposed project is a listed activity in terms of Waste Management Activities, and activities triggered are:

- **GN. 718 A** (19): The expansion of facilities which requires an amendment of an existing permit or licence or a new permit or licence in terms of legislation governing the release of pollution, effluent or waste.
- GN718 A (20): Decommissioning of activities in Category A.
- GN. 718 B (7): The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more.
- GN. 718 B (11): The construction of facilities for activities listed in Category B.

Coastal & Environmental Services has been commissioned by HSC Consulting to undertake the Environmental Impact Assessment and Waste Licence Application. You are hereby invited to register as an Interested & Affected Party (I&AP). Please submit your name, contact information and any comments to the contact person below within 30 days.

Notice is also hereby given of the release of the EIA Scoping report for public review from 22 June to 20 August 2012.

For more information, registration as an I&AP or submission of written comments contact by post, phone, fax or e-mail:

Contact details: Ms. Daisy Kotsedi, PO Box 8145, East London, 5210, Tel: 043 742 3302, Fax: 043 742 3306, e-mail:d.kotsedi@cesnet.co.za

Date of advert: 15 June 2012

6.1.4 Letter of Notification

COASTAL & ENVIRONMENTAL SERVICES
Environmental Management and Impact Assessment

67 African Street P.O. Box 934
Grahamstown 6140 SOUTH AFRICA
Tel: 046-622 2364 Fax: 046-622 6564
International: +27-46-622 2364
Email: info@cesnet.co.za
Website: www.cesnet.co.za

2 Marine Terrace P.O. Box 8145
East London 5210 SOUTH AFRICA
Tel: 043-722 5812 Fax: 043-742 3306
International: +27-43-722 5812
Email: cesel@cesnet.co.za
Website: www.cesnet.co.za

15 June 2012

Dear Stakeholder/Interested & Affected Party

Notification of intent to submit a Waste License Application and Environmental Impact Assessment for: Proposed St Patrick's Hospital Sanitation system, Eastern Cape

The Department of Public Works is proposing to move the Waste Water Treatment Works to accommodate the expansion of the St Patrick's Hospital in Bizana (Eastern Cape). This includes decommissioning of the existing sewer oxidation ponds and for a new pond to be constructed. Some components of the existing ponds will be retained and incorporated into the new treatment facility before decommissioning the existing ponds.

Coastal and Environmental Services (CES) has been appointed by HSC Consulting to undertake an Environmental Impact study (EIA) in accordance with the regulations set out in the National Environmental Management Act 1998 (Act No. 107 of 1998) as amended. The activities will be triggered by the proposed development are listed in the application and the Background Information Document (BID).

This proposed project will be registered with the Department of Environmental Affairs (DEA), Pretoria.

Please find attached the Background Information Document (BID). This document supplies information on the proposed project, as well as the EIA process and the public participation process that will be followed during the EIA of the proposed project.

You are hereby invited to register as an Interested & Affected Party (I&AP). Please submit your name, contact information and any comments to the contact person below.

Kind regards

Daisy Kotsedi
Environmental Consultant
Coastal and Environmental Services
PO Box 8145
Nahoon, East London, 5210
Tel: 043 742 3302
Fax: 043 742 3306
E-mail: d.kotsedi@cesnet.co.za

6.1.5 Background Information Document (BID)

BACKGROUND INFORMATION DOCUMENT & INVITATION TO COMMENT: St Patrick's Hospital Sanitation Project, Bizana

AIM OF THIS DOCUMENT

The aim of this Background Information Document is to provide people affected by and interested in the proposed project with information about this project, the process being followed and to provide them with an opportunity to be involved in the EIA process.

Interested and Affected Parties (I&APs) may raise issues of concern. These will be examined and included in the Reports.

The findings of the EIA will be provided to the DEA (National, Pretoria) for final decision making, as to whether or not the project should go ahead and if so under what conditions.

Return address for comments:

Daisy Kotsedi
2 Marine Terrace
Hampton Court
5201
East London
Tel: (043) 742 3302
Fax: (043) 742 3306
Email:
d.kotsedi@cesnet.co.za

Submit comments by:
30 August 2012

Your involvement in this process is critical, and will help ensure that all relevant issues are raised and assessed in the EIA process

BACKGROUND

Department of Public Works proposes the construction of a new oxidation pond (0.1 Mℓ/day) and to decommission existing ponds for St Patrick's Hospital in the Bizana area, in the Eastern Cape. The proposed site is located in the Alfred Nzo District Municipality.

Coastal and Environmental Services (CES) has been appointed by HSC Consulting to undertake the necessary environmental investigations for the St Patrick's Hospital Sanitation Project, and to apply for approval from National Department of Environmental Affairs for the construction and operation of the WWTW, as required by South Africa's environmental legislation. Details of the relevant laws, and an overview of the environmental impact assessment process, are provided on the next page.

PROJECT DESCRIPTION

Currently St Patrick's hospital has 5 sewer oxidation ponds (Figure 1). The proposed project entails the construction of new ponds and the decommissioning of the existing ponds. The proposed new oxidation ponds will consist of earth ponds lined with a polymer lining. The new proposed system will be immediately adjacent to the existing ponds in the south-west corner of the property (Figure 2).

A facultative pond will bio-transform the soluble and nitrogenous compounds in the influent effluent stream into carbon dioxide and biomass. A dedicated bio-filter (side stream process) will provide a facility to oxidise residual organics and nitrify ammonia.

Figure 1: Locality of the existing oxidation ponds in relation to Bizana, Eastern Cape.

RELEVANT LEGISLATION

The National Environmental Management Act (NEMA)(Act No 107 of 1998) identifies activities in terms of section 24(2)(a) and (d) which may not commence without an authorisation from the competent authority, who in this case is Department of Environmental Affairs, (DEA- National). In addition GN 718 (B) (7) in terms of National Environmental Management Waste Act (59 of 2008) requires that a Full Scoping and EIA are carried out for authorisation and waste licence from the competent authority (Department of Environmental Affairs). In order to apply for authorisation for the development, assessment and communication of potential impacts of the activities must follow the procedure as described in regulations 26 to 35 of the Environmental Impact Assessment Regulations, (2010).

The proposed project is subject to a full Scoping and Environmental Impact Assessment in terms of the following listed activities:

Activity No (s)	Listed activity
GN. 718 A (19)	The expansion of facilities of or changes to existing facilities for any process or activity, 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.
GN718 A (20)	The decommissioning of activities in Category A.
GN. 718 B (7)	The treatment of effluent, wastewater or sewage with an annual throughput capacity of 15 000 cubic metres or more.
GN. 718 B (11)	The construction of facilities for activities listed in Category B.

POTENTIAL IMPACTS

CES will investigate the receiving environment in order to assess the nature of potential impacts. Impacts to be considered include environmental failure and risks of the "no-go" alternative. In addition, impacts relating to the hydrology and erosion will be assessed.

The following specialist studies will be conducted as part of the EIA:

- Waste Water Impact Assessment
  - This study will assess the various feasible alternative technologies for waste treatment and determine the impact of the receiving aquatic environment.

APPROACH TO THIS SCOPING AND EIA REPORT

The EIA for the proposed project is presently in the SCOPING phase. This phase serves primarily to inform the public and relevant authorities about the proposed project and to determine any impacts. These impacts will then be extensively addressed by specialists in the field during the environmental impact assessment (EIA) phase. Only after the full EIA report has been submitted will a decision be made by relevant authorities.

Scoping Process

Advertisement & Registration of I&APs
↓
Distribution of BID Document to I&APs for comment
↓
Compilation of I&AP comments
↓
Review of Draft Scoping Report by I&APs
↓
Public Meeting
↓
Submission of Scoping Report to DEA
↓
Acceptance of Scoping Report by DEA & Instruction to proceed to EIA Phase

Potential Benefits of the Sanitation Facility

According to the project proponent, the motivation for the proposed project arose from the following potential benefits:

- Relatively simple wastewater treatment technologies can be designed to provide low cost sanitation and environmental protection
- Social welfare in this area will be improved by the increase of sanitation facility.

HOW CAN YOU BE INVOLVED?

A Public Participation Process (PPP) is being conducted as part of the EIA. The aim of the PPP is to allow everyone who is interested in, or likely to be affected by, the proposed development to provide input into the process.

The Public Participation Process will include:

- Advertisement in the Daily Dispatch;
- Notice Boards on site
- Circulation of the BID (this document) to all I&APs identified ;
- Comments period;
- Review of the report by all registered I&APs and DEA (National) ;
- A public meeting (if required).

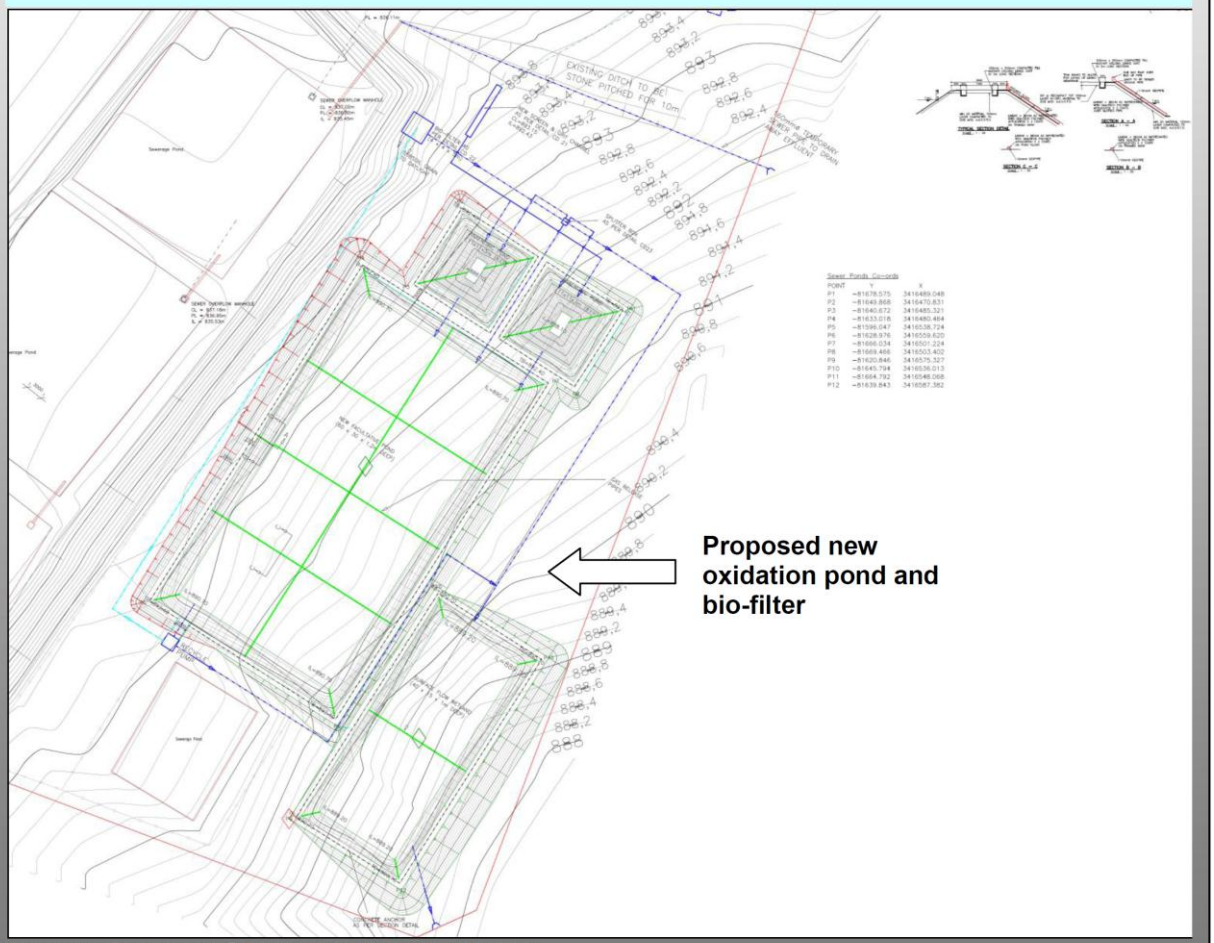


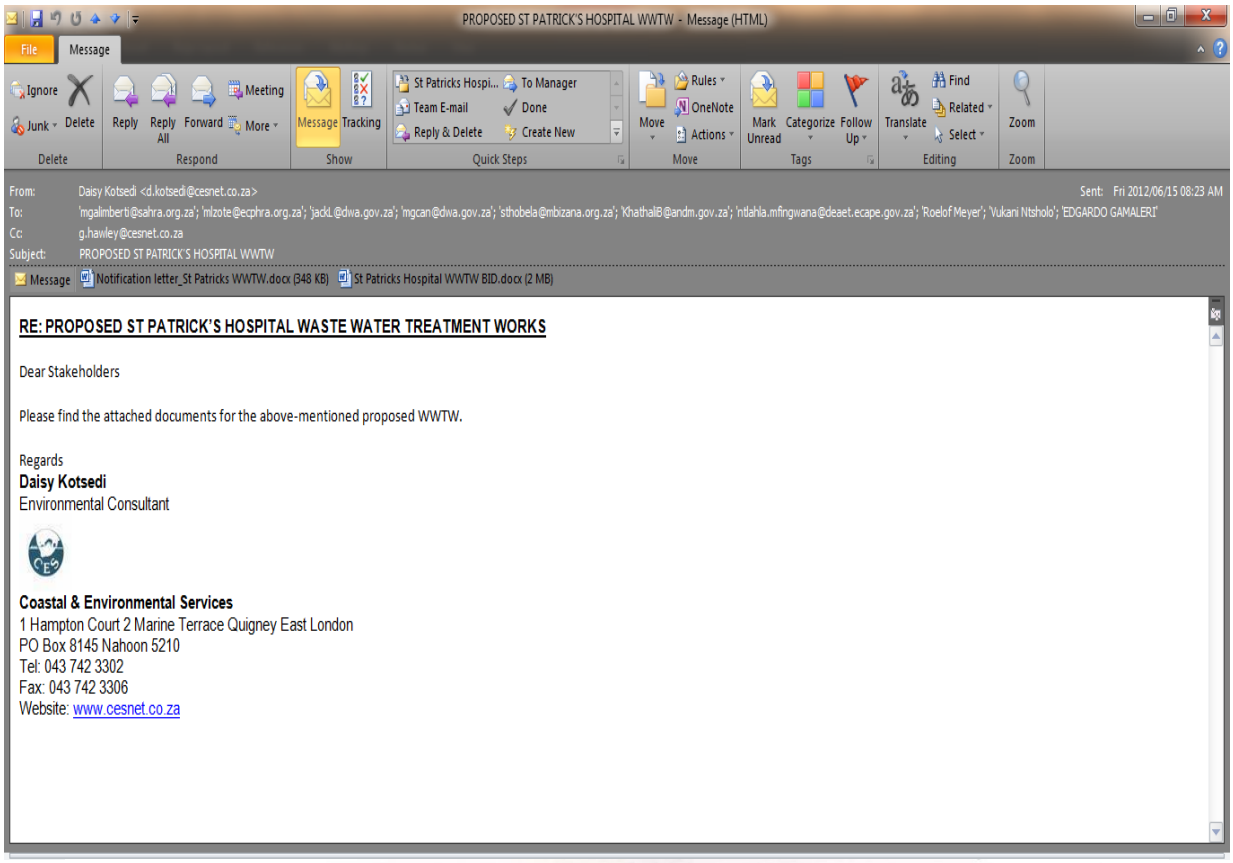
Figure 2: Proposed St Patrick's Hospital WWTW.

6.1.6 Authority and Stakeholder Engagement

List of registered Interested & Affected Parties.

Organisation	Name	E-mail	Tel	Postal address
Stakeholders				
SAHRA	M Galimberti	mgalimberti@sahra.org.za		
NHRA	M L Zote	mlzote@ecphra.org.za	(043) 642 2811	
DEDEAT	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	P O Box 7019, East London, 5200
	MN Mgca	mgcan@dwa.gov.za		
Mbizana LM (Ward councillor)	N Kwelemtini		(072) 527 7960 / (083) 619 6458	PO Box 12, Bizana, 4800
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	
Surrounding landowners				
I & AP register				
NONE TO DATE				

6.1.7 Proof of notification



PROPOSED ST PATRICK'S HOSPITAL WWTW - Message (HTML)

File | Message

Ignore | Junk | Delete | Reply | Reply All | Forward | Meeting | More | Message | Tracking | St Patricks Hospi... | To Manager | Team E-mail | Done | Reply & Delete | Create New | Move | Rules | OneNote | Actions | Mark Unread | Categorize | Follow Up | Translate | Find | Related | Select | Zoom

From: Daisy Kotsedi <d.kotsedi@cesnet.co.za> Sent: Fri 2012/06/15 08:23 AM

To: 'mgalimberti@sahra.org.za'; 'mlzote@ecphra.org.za'; 'jackL@dwa.gov.za'; 'mgcan@dwa.gov.za'; 'sthobela@mbizana.org.za'; 'KhathaliB@andm.gov.za'; 'ntlahla.mfingwana@deaet.ecape.gov.za'; 'Roelof Meyer'; 'Vukani Ntsholo'; 'EDGARDO GAMALERI'

Cc: g.hawley@cesnet.co.za

Subject: PROPOSED ST PATRICK'S HOSPITAL WWTW

Message | Notification letter_St Patricks WWTW.docx (348 KB) | St Patricks Hospital WWTW BID.docx (2 MB)

RE: PROPOSED ST PATRICK'S HOSPITAL WASTE WATER TREATMENT WORKS

Dear Stakeholders

Please find the attached documents for the above-mentioned proposed WWTW.

Regards

Daisy Kotsedi

Environmental Consultant

Coastal & Environmental Services

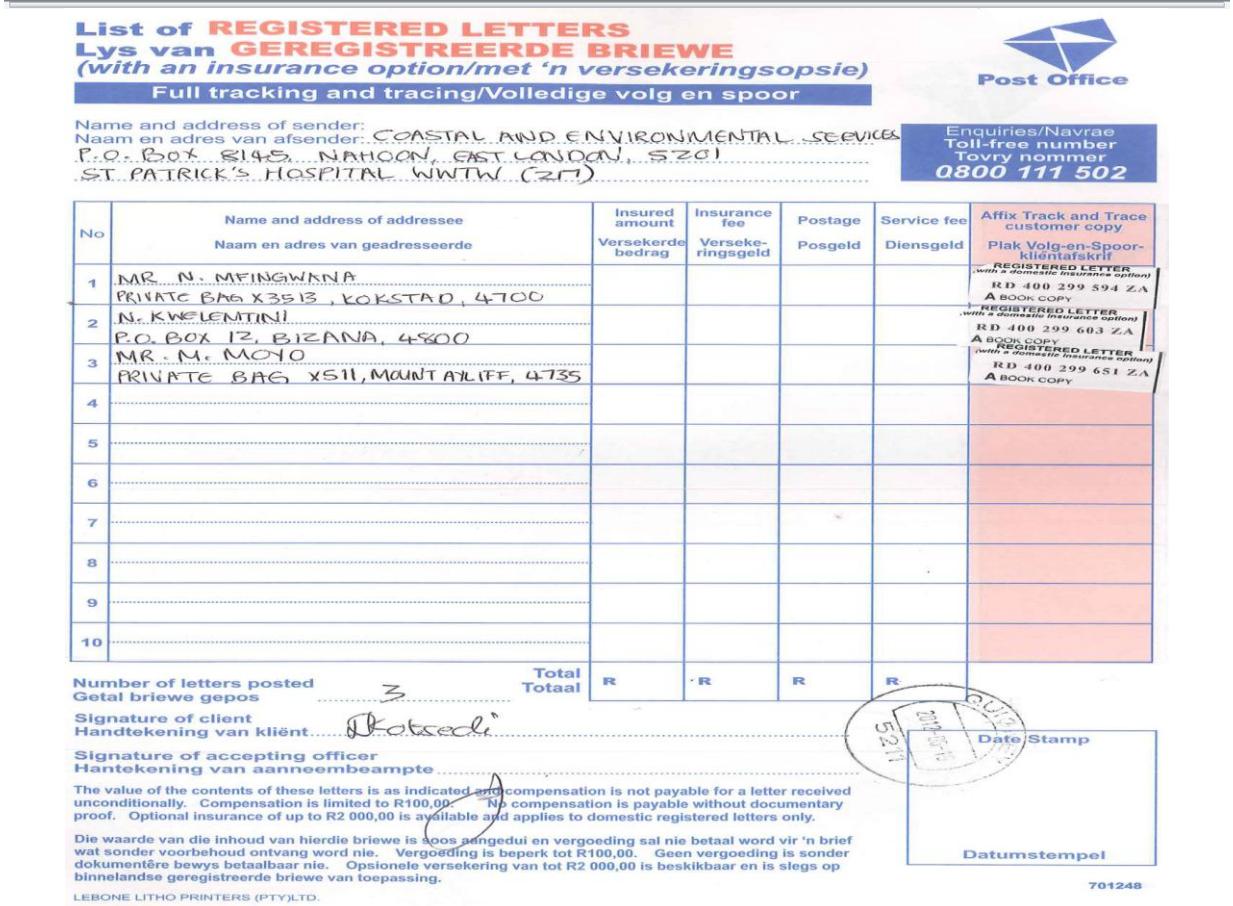
1 Hampton Court 2 Marine Terrace Quigney East London

PO Box 8145 Nahoon 5210

Tel: 043 742 3302

Fax: 043 742 3306

Website: www.cesnet.co.za



List of REGISTERED LETTERS
Lys van GEREGISTREERDE BRIEWE
(with an insurance option/met 'n versekeringsopsie)
Full tracking and tracing/Volledige volg en spoor

Post Office

Name and address of sender:
Naam en adres van afsender: COASTAL AND ENVIRONMENTAL SERVICES
P.O. BOX 8145, NAHOON, EAST LONDON, 5201
ST PATRICK'S HOSPITAL WWTW (ZM)

Enquiries/Navrae
Toll-free number
Tovry nommer
0800 111 502

No	Name and address of addressee / Naam en adres van geadresseerde	Insured amount / Versekerde bedrag	Insurance fee / Versekeringsgeld	Postage / Posgeld	Service fee / Diensgeld	Affix Track and Trace customer copy / Plak Volg-en-Spoor-kliëntafskrif
1	MR N. MFINGWANA PRIVATE BAG X3513, KOKSTAD, 4700					REGISTERED LETTER (with a domestic insurance option) RD 400 299 594 ZA A BOOK COPY
2	N. KWELEMTINI P.O. BOX 12, BIZANA, 4800					REGISTERED LETTER (with a domestic insurance option) RD 400 299 603 ZA A BOOK COPY
3	MR. M. MOYO PRIVATE BAG X511, MOUNT AYLIFF, 4735					REGISTERED LETTER (with a domestic insurance option) RD 400 299 651 ZA A BOOK COPY
4						
5						
6						
7						
8						
9						
10						
	Total / Totaal	R	R	R	R	

Number of letters posted / Getal briewe gepos 3

Signature of client / Handtekening van kliënt D Kotsedi

Signature of accepting officer / Hantekening van aanneembeampte

Date Stamp

Datumstempel

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

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7 CONCLUSIONS AND RECOMMENDATIONS

7.1 Project description

The proposed activity involves the construction of new oxidation pond and bio-filter as well as the decommissioning of old ponds at St Patrick's Hospital in Bizana. The hospital is currently expanding to include a nursing college and additional hospital services, which is encroaching on the existing sewage oxidation ponds.

7.2 Scoping Report comments

The treatment capacity of the existing sanitation system at St Patrick's Hospital will not perform adequately with the increased sewage flow that is expected due to the expansion of hospital facilities.

No fatal flaws with regard to the technology design or site have been identified.

The environment presented no sensitivity in slope, vegetation (already in poor state) or geology. Social benefits will be gained from the expansion of St Patrick's Hospital and proper treatment of the waste water.

A sanitation or waste water technology specialist will report on the assessment of the technology and environmental impact of the proposed design and operation of the waste water treatment works.

7.3 Identified issues and impacts

Table 7.1 below, summarised the issues identified in the Scoping Phase and indicates how these issues will be investigated in the EIR phase. A plan of study has been developed (Chapter 9) for the EIR phase, where identified impacts will be assessed in further detail.

Table 7.1 Summary of identified impacts and recommended issues to be assessed in the EIR.

Phase	Issue	Action response
Planning and design	Technology employed	Alternative methods for the treatment of sewage have been explored and will be assessed in further detail in the EIR.
	Associated risks	Electricity disruptions and blockages and general maintenance plan to be investigated in EIA report.
Construction	Vegetation clearing Onsite building activities Storage facilities Associated risks	The mitigation measures to be implemented will need to reflect the type and extent of vegetation clearing. The size and duration of the building activity will be assessed and a construction Environmental Management Plan provided in the EIR report. Facilities for storage of materials will be investigated in the EIA report.
	Skilled operating staff and training	Adequate training and qualification of staff operating the facility is to be assessed in the EIR. Provide input into an Operational Management Plan (OMP).
	Maintenance plan to	Maintenance and controls to be investigated and assessed

Phase	Issue	Action response
	control and monitor sewage production and effluent quality	in the EIR report. Specialist input will be required. Provide input into an OMP.
	Sludge disposal	Assess appropriate disposal alternatives and Guidelines for composting. Specialist input will be required. Provide input into an OMP.
	Storm water Plan	As the holding capacity of the maturation damn may be influenced by flood rain, general holding capacity will be investigated and assessed in the EIA. Provide input into an OMP.
	Associated operation failure risks	1) Electrical disruptions 2) Maintenance disruptions 3) Pipeline leaks 4) Poor performance: comparative studies (requires Specialist input).

These key issues are to be addressed and assessed in full detail during the EIR phase.

8 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 0f 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).

9 PLAN OF STUDY FOR EIA

Content of scoping reports
28. (1) A scoping report must contain all the information that is necessary for a proper understanding of the nature of issues identified during scoping, and must include –

(n) a plan of study for environmental impact assessment which sets out the proposed approach to the environmental impact assessment of the application, which must include:

(i) a description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;

(ii) an indication of the stages at which the competent authority will be consulted

(iii) a description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and

(iv) particulars of the public participation process that will be conducted during the environmental impact assessment process.

9.1 Introduction

The Plan of Study details the proposed approach to the Environmental Impact Assessment and in terms of the EIA Regulations (2006) as amended in 2010 should include:

- A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialist reports or specialised processes, and the manner in which such tasks will be undertaken;
- An indication of the stages at which the competent authority will be consulted;
- A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity; and
- Particulars of the public participation process that will be conducted during the environmental impact assessment process; and
- Any specific information required by the competent authority.

9.2 Description of Tasks

- Public Participation.
- Consultation with stakeholders/IAPs (predominately DWA and surrounding land users) regarding possible significance of impacts and suitable mitigation measures.
- Specialist studies by appropriate sanitation scientists.
- Evaluate and summarise findings of **specialist sanitation 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.

9.3 Terms of Reference for specialist waste water impact assessment

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.

9.4 Stages of Authority Consultation

Consultation with DEDEAT (Alfred Nzo Region) will be on-going. The Department of Water Affairs (WMA 12) will be actively engaged. A site visit, if required by DEA, should be scheduled at their earliest convenience.

9.5 Methodology for Assessing Impacts and Alternatives

9.5.1 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.

9.5.2 Description of criteria

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. The tables below (Table 10.1-10.3) describe the criteria and how they will be applied to each impact identified.

Table 11.1 Significance Rating Table

Significance Rating Table	
Temporal Scale (The duration of the impact)	
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.
Spatial Scale (The area in which any impact will have an affect)	
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 at St Patrick's Hospital (Bizana).
Municipal	Impacts affect 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.
Degree of Confidence or Certainty (The confidence with which one has predicted the significance of an impact)	
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 11.2 Impact Severity Rating

Impact severity (The severity of negative impacts, or how beneficial positive impacts would be on a particular affected system or affected party)	
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	A long term impact and substantial benefit to the affected system(s) or party(ies). Alternative ways of achieving this benefit

time consuming, or some combination of these. For example, the clearing of forest vegetation.	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 11.3 Overall Significance Rating

Overall Significance (The combination of all the above criteria as an overall significance)	
VERY HIGH NEGATIVE	VERY BENEFICIAL
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 **severe** or **very severe** effects, or **beneficial** or **very beneficial** effects. **Example:** The loss of a species would be viewed by informed society as being of VERY HIGH significance. **Example:** 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.	
HIGH NEGATIVE	BENEFICIAL
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. **Example:** 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. **Example:** 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. **Example:** 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. **Example:** The temporary change in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels. **Example:** 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. **Example:** 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. **Example:** The effect of a particular development on people's psychological perspective of the environment.

9.6 Proposed Public Participation

Given the nature of the proposed development, the already active involvement of the surrounding communities and villages in the Scoping Phase, it is suggested that the EIR public participation commences as soon as possible. The process will take the following form

- Registration of any new I&APs
- Continued engagement with the communities in the area
- Circulation of Draft EIR to I&APs and DEDEAT/DWA for comment, with a 60 day response period
- Submission of final EIR to DEA.

10 INTERESTED AND AFFECTED PARTIES: CORRESPONDENCE

Correspondence from I&APs to be inserted after comments from reviewing this document.