

# Basic Assessment Report



**edtea**

**Department :**  
Economic Development, Tourism and  
Environmental Affairs

**PROVINCE OF KWAZULU-NATAL**

(For official use only)

EIA File Reference Number:

NEAS Reference Number:

Waste Management Licence Number:  
(if applicable)

Date Received:


## BASIC ASSESSMENT REPORT

Submitted in terms of the Environmental Impact Assessment Regulations, 2010 promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998)

This template may be used for the following applications:

- Environmental Authorization subject to basic assessment for an activity that is listed in Listing Notices 1 or 3, 2010 (Government Notices No. R 544 or No. R 546 dated 18 June 2010); or
- Waste Management Licence for an activity that is listed in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) for which a basic assessment process as stipulated in the EIA Regulations must be conducted as part of the application (refer to the schedule of waste management activities in Category A of Government Notice No. 718 dated 03 July 2009).

Kindly note that:

1. This basic assessment report meets the requirements of the EIA Regulations, 2010 and is meant to streamline applications. This report is the format prescribed by the KZN Department of Economic Development, Tourism and Environmental Affairs. Please make sure that this is the latest version.
2. The report must be typed within the spaces provided in the form. The size of the spaces provided is not indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with text.
3. Where required, place a cross in the box you select.
4. An incomplete report will be returned to the applicant for revision.
5. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it will result in the rejection of the application as provided for in the regulations.
6. No faxed or e-mailed reports will be accepted.
7. The report must be compiled by an independent environmental assessment practitioner ("EAP").
8. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
9. The KZN Department of Economic Development, Tourism and Environmental Affairs may require that for specified types of activities in defined situations only parts of this report need to be completed.

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## Basic Assessment Report

10. The EAP must submit this basic assessment report for comment to all relevant State departments that administer a law relating to a matter affecting the environment. This provision is in accordance with Section 24 O (2) of the National Environmental Management Act 1998 (Act 107 of 1998) and such comments must be submitted within 40 days of such a request.
11. Please note that this report must be handed in or posted to the District Office of the KZN Department of Agriculture & Environmental Affairs to which the application has been allocated (please refer to the details provided in the letter of acknowledgement for this application).

## Basic Assessment Report

### DEPARTMENTAL REFERENCE NUMBER(S)

File reference number (EIA):	DM/0017/2014
File reference number (Waste Management Licence):	

### SECTION A: DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER AND SPECIALISTS

#### 1. NAME AND CONTACT DETAILS OF ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Name and contact details of the EAP who prepared this report:

Business name of EAP:	Kerry Seppings Environmental Management Specialists cc (KSEMS)		
Physical address:	4 Woodville Lane, Off Hawkstone Avenue, Summerveld, Assagay		
Postal address:	P. O. Box 396, Gillitts		
Postal code:	3603	Cell:	079 520 1583
Telephone:	031 769 1578	Fax:	086 535 5281
E-mail:	<a href="mailto:kerry.seppings@telkomsa.net">kerry.seppings@telkomsa.net</a>		

#### 2. NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience at environmental assessments (years)
Kerry Stanton	MSc Cum laude BSc (Hons) MSc	- EAPSA Certified, - Certified Professional Natural Scientist (400167/12), - Certified GCX Carbon Footprint Analyst (Level 1)	18
Colin Holmes	MSc Cum laude BSc (Hons)		2
Patricia Nathaniel	BSc Honours (Environmental Management)		3

#### 3. NAMES AND EXPERTISE OF SPECIALISTS

Names and details of the expertise of each specialist that has contributed to this report:

Name of specialist	Education qualifications	Field of expertise	Section/ s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
Ryan Edwards	Detailed CV available on request	Wetland	Section 4	

# Basic Assessment Report

## SECTION B: ACTIVITY INFORMATION

### 1. PROJECT TITLE

Describe the project title as provided on the application form for environmental authorization:

The construction of Community Ablution Blocks (CABs) and associated infrastructure in Umlazi P and Q, eThekweni Municipality

### 2. PROJECT DESCRIPTION

Provide a detailed description of the project:

#### Background

As part of the "Provision of Water and Sanitation to Informal Settlements within eThekweni Municipality", certain priority informal settlements were identified within the eThekweni Municipality that urgently need ablution blocks, as well as water and sewer connections to serve the communities immediate needs. The proposed laid pipes (water and sewer) will tie-into existing reticulation and will provide future reticulation when the area is developed.

The ablution facility chosen by Council to be installed is a temporary modified container. This arrangement allows for future removal and re-placement to other informal settlements, as the settlements are upgraded and individual water and sewer connections are provided to each new formalised dwelling. Each "Ablution" block should service approximately 50-75 households and be a maximum distance of 250m from any point. Further detail of the programme scope is attached as Appendix G1 of this document.

This proposed development is targeted toward the informal settlements of the Umlazi P and Q area and entails the construction of approximately twelve (12) Communal Ablution Blocks (CABs). Pipes with a diameter of approximately 160mm in diameter will be used to connect the CABs to the bulk sewer pipeline which will transfer the sewerage to the Southern Waste Water Treatment facility.

The majority of the CAB sites are located within 32 metres of a watercourse and cumulatively infrastructure exceeding 50 square metres will be constructed.

#### Project Technology and Design

##### Technology

Technology options for CABs are dependent on the area characteristics and proximity to existing sewer lines. There are two basic technology options applied in proposed projects such as these, namely sewer discharge and CAB to storage tank or Ventilated Improved Pit (VIP).

Sewer discharge is the option used in areas that are characterized by high population density and located in close proximity to a sewer line where the CAB is then connected to a sewer system. In a typical CAB there are two separate areas the male part (two or more flush toilets, two urinals, two hand wash basins and two showers) and the female part a (four or more flush toilets, two hand wash basins and two showers). Laundry facilities are generally present and lighting is provided via translucent roof sheeting and external mast mounted floodlights (NB: These are typical CAB designs and would vary according to the specific site and availability of space).

The CAB to storage tank or VIP Pit is a technology applied where there is no local connection to the sewerage system and the CAB is connected to a storage tank or VIP pits. For this project, the first option will be applied as there is an existing sewer line to which the CABs can connect.

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## Basic Assessment Report

Figure one and two illustrate the external and internal structure of the CABs respectively while Figure three is the external structure of the VIP toilet where a local connection to the sewerage system isn't possible.

### Design

There are a number of factors to consider when designing CABs, the following are a few of these factor:

- Land acquisition: Informal settlements are generally located on land plots owned by the eThekweni Municipality therefore landowner notification is necessary;
- Space consideration: Sites or plots must be greater than 250m<sup>2</sup> ;
- Gradient: The average slope must be less than 1:3;
- Environmental consideration: There must be low risk of groundwater pollution or if present this must be mitigated; and
- Water supply: Sites must have basic level of water supplies.

The 12 sites were chosen according to these criterion.



Figure one: Prefabricated container in Durban (Source: eThekweni Water and Sanitation, 2010)



Figure three: VIP toilets are used when a connection to the sewerage system is not available

### 3. ACTIVITY DESCRIPTION

Describe each listed activity in Listing Notice 1 (GNR 544, 18 June 2010), Listing Notice 3 (GNR 546, 18 June 2010) or Category A of GN 718, 3 July 2009 (Waste Management Activities) which is being applied for as per the project description:

<p>As per LN 1_ GNR 544_ 18<sup>th</sup> June 2010 promulgated from the 2<sup>nd</sup> of August 2010:</p>	<p>No. 11 The construction of:</p> <ul style="list-style-type: none"> <li>i) Canals;</li> <li>ii) Channels;</li> <li>iii) Bridges</li> <li>iv) Dams;</li> <li>v) Wiers;</li> <li>vi) Bulk stormwater outlet structures;</li> <li>vii) Marinas;</li> <li>viii) Jetties exceeding 50 square metres in size;</li> <li>ix) Slipways exceeding 50 square metres in size;</li> <li>x) Buildings exceeding 50 square metres in size; or</li> <li>xi) Infrastructure covering 50 square metres or more</li> </ul> <p>Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse.</p>	<p>The applicant proposes to construct ablution facilities and associated pipework within the Umlazi P and Q Informal Settlements, eThekweni Municipality, triggering activity 11 of GNR 544, infrastructure covering an area greater than 50m<sup>2</sup> within 32 meters of a watercourse.</p>
	<p>No.18 The infilling or depositing of any material of more than 5 cubic metres into, or the</p>	<p>It is possible that there will be potential infilling or removal of more than 5m<sup>3</sup> of material in a watercourse (in the case of</p>

## Basic Assessment Report

<p>dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from</p> <p>(i) A watercourse  (ii) The sea  (iii) The seashore  (iv) The littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is greater-</p> <p>But excluding where such infilling, depositing, dredging, excavation, removal or moving</p> <p>(i) Is for the maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority;</p> <p>or</p> <p>(ii) Occurs behind the development setback line.</p>	<p>the pipelines requiring trenched crossings).</p>
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#### 4. FEASIBLE AND REASONABLE ALTERNATIVES

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

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

## Basic Assessment Report

Describe alternatives that are considered in this report. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. The determination of whether site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly

In 2010, approximately 150 000 families were estimated to occupy 417 informal settlements within the eThekweni Municipality, of this a large portion was located within Umlazi (EWS, 2009). The residents of these informal settlements require access to basic services such as access to water and sanitation.

Alternative A1 and S1 (preferred):

Criteria for the preferred Alternative – Site Selection

The proposed scope of works for this development entails the construction of CABs and associated pipework which will connect the CABs to the existing bulk sewer pipeline in the area. The CABs will be located on a shared catchment area, existing infrastructure tie-in points, drainage to existing common waste water treatment works and defined existing settlement features that are less likely to change when new settlement plans are prepared. The location of the CABs and associated infrastructure have been chosen by taking into consideration graves, nearby watercourses, proximity to D'MOSS, existing dwellings and associated structures, proximity to tie-in points and community approval and "buy-in".

Criteria for the preferred Alternative – Technology Options

The ablution facility selected by the eThekweni Municipality is a temporary modified container comprising toilets, urinals, showers, basins, a store room, an external wash trough and a standpipe. This arrangement allows for future removal and re-placement to other informal settlements, as the settlements are upgraded and individual water and sewer connections are provided to each new formalised dwelling. In terms of quality and value the CAB's are a quick, affordable, functional and a temporary solution to the lack of sanitation in informal settlements. Furthermore the CAB's are also sustainable as they will connect directly into the existing bulk infrastructure. CABs were the preferred technology option over VIPs because a connection to the existing sewerage system is necessary even once the informal settlements are upgraded to formal housing. In addition VIPs can result in groundwater contamination if not properly lined, it is difficult to construct in rocky or areas with undulating hills and there is an increased cost associated with the installation of vent pipes.

In summary the preferred site alternatives were chosen to service the need of the residents of the informal settlements in relation to the environment, cost and existing sewerage infrastructure and the preferred site alternatives proved to be the most feasible. In terms of technology, the CABs were preferred over VIPs due to being cost effective and to create a connection to the existing sewerage infrastructure for future use. Therefore there were no feasible site or technological alternatives requiring further investigation.

accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.



## Basic Assessment Report

### Proposed Development Specifications

Approximately 12 CAB toilets will be erected in the Umlazi P and Q areas. These will have estimated dimensions of 8 x 9.5m each and will cover an area of approximately 1520m<sup>2</sup> in total. Sewerage from the toilets will travel to an existing bulk gravity sewer pipeline. The bulk sewer line will tie into an existing sewer manhole in the area.

The pipes that will connect the CABs to the bulk sewer pipeline will be approximately 160 mm in diameter and will be made from unplasticized Poly Vinyl Chloride (u PVC) which is widely used during construction due to its high resistance against chemicals, sunlight and oxidation from water.

No Go Alternative i.e. not constructing the ablution facilities in Umlazi P and Q. The no go alternative would result in the local community's continued use of other forms of ablution and their continued exposure to unsanitary conditions. The construction of formalised sanitation facilities in Umlazi P and Q is aimed at improving hygiene conditions within this area of the eThekweni Municipality, which would not result if the project did not go ahead.

Sections B 5 – 15 below should be completed for each alternative.

### 5. ACTIVITY POSITION

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. List alternative sites were applicable.

Alternative S1 <sup>1</sup> (preferred or only site alternative)			
Site Number	Latitude (S):	Longitude (E):	Distance from the Watercourse (m):
39	29°58'56.57"S	30°53'18.81"E	Approximately 29m
40	29°58'55.67"S	30°53'16.41"E	Approximately 33m
49	29°59'13.37"S	30°53'27.55"E	Approximately 42m
50	29°59'12.10"S	30°53'27.64"E	Approximately 59m
51	29°59'11.06"S	30°53'29.27"E	Approximately 46m
52	29°59'10.56"S	30°53'31.47"E	Approximately 58m
57	29°58'44.79"S	30°52'48.64"E	Approximately 43m
60	29°58'32.05"S	30°52'44.45"E	Approximately 41m
69	29°59'40.21"S	30°53'05.04"E	Approximately 20m
70	29°59'22.76"S	30°53'03.38"E	Approximately 20m
73	29°58'11.26"S	30°53'39.58"E	Approximately 30m
MX4	29°58'26.08"S	30°52'37.66"E	Approximately 20m
Alternative S2 <sup>2</sup> (if any)	N/A	N/A	N/A
Alternative S3 <sup>3</sup> (if any)	N/A	N/A	N/A

In the case of linear activities:

Alternative:	Latitude (S):	Longitude (E):
Alternative S1 (preferred or only route alternative)		

<sup>1</sup> "Alternative S.." refer to site alternatives.

<sup>2</sup> "Alternative S.." refer to site alternatives.

<sup>3</sup> "Alternative S.." refer to site alternatives.

## Basic Assessment Report


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

### 6. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:		Total size of the toilet platform area (12 CAB sitesX 2 CABs per site):
Alternative A1 <sup>4</sup> (preferred activity alternative)		1824m <sup>2</sup>
Alternative A2 (if any)		N/A m <sup>2</sup>
Alternative A3 (if any)		N/A m <sup>2</sup>

or, for linear activities:

Alternative:		Total size of the toilet platform area:
Alternative A1 (preferred activity alternative)		N/A m <sup>2</sup>
Alternative A2 (if any)		N/A m <sup>2</sup>
Alternative A3 (if any)		N/A m <sup>2</sup>

### 7. SITE ACCESS

Does ready access to the site exist?	YES X	NO
If NO, what is the distance over which a new access road will be built	N/Am	
Describe the type of access road planned:		
N/A		

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

### 8. SITE OR ROUTE PLAN

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as Appendix A to this report.

The site or route plans must indicate the following:

- 8.1. the scale of the plan which must be at least a scale of 1:500;
- 8.2. the property boundaries and numbers/ erf/ farm numbers of all adjoining properties of the site;
- 8.3. the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 8.4. the exact position of each element of the application as well as any other structures on the site;

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<sup>4</sup> "Alternative A.." refer to activity, process, technology or other alternatives.

## Basic Assessment Report

- 8.5. the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 8.6. walls and fencing including details of the height and construction material; N/A
- 8.7. servitudes indicating the purpose of the servitude; N/A
- 8.8. sensitive environmental elements within 100metres of the site or sites including (but not limited thereto):
  - rivers, streams, drainage lines or wetlands;
  - the 1:100 year flood line (where available or where it is required by DWA);
  - ridges;
  - cultural and historical features;
  - areas with indigenous vegetation including protected plant species (even if it is degraded or infested with alien species);
- 8.9. for gentle slopes the 1metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 8.10. the positions from where photographs of the site were taken.

### 9. SITE PHOTOGRAPHS

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

### 10. FACILITY ILLUSTRATION

A detailed illustration of the facility must be provided at a scale of 1:200 and attached to this report as Appendix C. The illustrations must be to scale and must represent a realistic image of the planned activity/ies.

### 11. ACTIVITY MOTIVATION

#### 11.1. Socio-economic value of the activity

- What is the expected capital value of the activity on completion?
- What is the expected yearly income that will be generated by or as a result of the activity?
- Will the activity contribute to service infrastructure?
- Is the activity a public amenity?
- How many new employment opportunities will be created in the development phase of the activity?
- What is the expected value of the employment opportunities during the development phase?
- What percentage of this will accrue to previously disadvantaged individuals?
- How many permanent new employment opportunities will be created during the operational phase of the activity?
- What is the expected current value of the employment opportunities during the first 10 years?
- What percentage of this will accrue to previously disadvantaged individuals?

R 3 million	
R0	
YES X	NO
YES X	NO
Approximately 60 contract workers during construction	
Approximately R950 400	
100%	
12 caretakers	
R1 million	
100%	

#### 11.2. Need and desirability of the activity

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

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## Basic Assessment Report

According to the Constitution of the Republic of South Africa Act 108 of 1996 and the Water Services Act 108 of 1997, Local Government must ensure that all their residents have access to safe water and sanitation. This project forms part of eThekweni Municipality's Provision of Water and Sanitation to Informal Settlements Programme. Details of the programme are provided in Appendix G1.

In South Africa, the Department of Water Affairs is the authority responsible for the formulation of national policy and legislation governing the delivery of water and sanitation. In Durban, the eThekweni Water and Sanitation (EWS) unit is mandated with the implementation of policies under the national legislative framework and therefore is also responsible for water and sanitation service delivery in the municipal area. As such, the EWS unit has undertaken an initiative in 2008 that was originally developed by the eThekweni Health, Architecture and Housing Developments in 2004. The purpose of this initiative is to provide each household with access to basic services pending the formal housing intervention.

At a municipal level the over-arching contributing factor that escalated the need for formal water and sanitation was the expansion of the municipal boundary in 2000 in addition to the cholera outbreak in the same year. As such the provision of proper water and sanitation in the informal settlements of the peri-urban and rural areas became a priority for the EWS with Umlazi being one such area. Umlazi P and Q consists of a large number of people living in informal settlements which are densely populated, living in informal settlements and are exposed to poor water and sanitation conditions.

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

Access to formal water and sanitation in the informal Settlements of Umlazi P and Q will:

- Improve the quality of life and living standards;
- Reduce incidence and outbreak of waterborne diseases;
- General improvement in hygiene and health;
- Infuse sense of dignity for the people;
- Create jobs for the local people (caretakers of the facilities); and
- Benefit the environment (little or no flow of sewerage into the rivers and streams).

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

As above, basic sanitation facilities will be provided for this section of the informal settlement within Umlazi P and Q, eThekweni Municipality. The following are added benefits of the proposed development:

- The risk of surface and ground water contaminations is significantly lowered as dependence on pit latrines is lowered.
- There is also expected to be a significant reduction in the amount of nutrient loading on local watercourses and wetland areas, resulting in reduced eutrophication, with an associated improvement in water quality, ecosystem health and biodiversity.
- The pipeline infrastructure will lay the foundation for long term sanitation service provision to the intended community. The CABs will provide short term ablution facilities for the greater community.
- Health and hygiene will be improved significantly for all community members involved due to the availability of communal sanitation.
- Sanitation projects such as these will allow the eThekweni Municipality to fulfil the goals associated with service delivery that are included in plans such as the Integrated Development Plan (IDP).

### 12. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline:	Administering authority:	Date:
National Environmental Management Act	All organs of State.	1998
Environment Conservation Act	DEA / EDTEA	1989
National Water Act	DWA	1998
National Water Resources Strategy	DWA	2004

## Basic Assessment Report

Occupational Health and Safety Act	DOL	1993
Hazardous Chemical Substance regulations	DOL	1995
Environmental Regulations for Workplaces	Department of Labour	1987
General Administrative Regulations	Department of Labour	2003
Construction Regulations	DOL	2003
eThekwini Municipality by-laws (General By-laws)	eThekwini Municipality	2008
National Environmental Management: Air Quality Act	DEA / EDTEA	2004
National Environmental Management: Waste Act	DEA / EDTEA	2008
National Standards (SANS)	SABS	2003

### 13. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

#### 13.1. Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES X	NO
If yes, what estimated quantity will be produced per month?	Approximately 2.5 m <sup>3</sup>	

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

Solid waste is expected to be minimal as there will not be any material excavated for trenches as required by the pipelines since existing pipelines will be used. Solid waste which is generated by the contractors must be removed from the site to a designated disposal area within the construction site camp and disposed of at the closest available registered landfill site.

Where will the construction solid waste be disposed of? (provide details of landfill site)

Any solid waste generated must be disposed of at the nearest available registered landfill site. The closest landfill site is the Mariannhill Landfill site approximately 25km from the site. The closest hazardous landfill site is the Umlazi IV H:h landfill situated in Isipingo Beach. Should alternative landfill sites be used, this disposal site must be fully licensed and registered and must be approved by the ECO prior to the disposal of waste at this facility.

Will the activity produce solid waste during its operational phase?	YES	NO X
If yes, what estimated quantity will be produced per month?	N/A m <sup>3</sup>	

How will the solid waste be disposed of? (provide details of landfill site)

N/A

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

N/A

If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine the further requirements of the application.

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES	NO X
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If yes, contact the KZN Department of Economic Development, Tourism and Environmental Affairs to obtain clarity regarding the process requirements for your application.

Is the activity that is being applied for a solid waste handling or treatment facility?	YES	NO X
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If yes, contact the KZN Department of Economic Development, Tourism and Environmental Affairs to obtain clarity regarding the process requirements for your application.

## Basic Assessment Report

### 13.2. Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

YES	NO X
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If yes, what estimated quantity will be produced per month?

N/A m <sup>3</sup>	
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Will the activity produce any effluent that will be treated and/or disposed of on-site?

Yes	NO X
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If yes, contact the KZN Department of Economic Development, Tourism and Environmental Affairs to obtain clarity regarding the process requirements for your application.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

YES	NO X
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If yes, provide the particulars of the facility:

Facility name:	N/A		
Contact person:	N/A		
Postal address:	N/A		
Postal code:	N/A		
Telephone:	N/A	Cell:	N/A
E-mail:	N/A	Fax:	N/A
Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any: N/A			
The reuse or recycling of waste water must be implemented where possible.			

### 13.3. Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES X	NO
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If yes, is it controlled by any legislation of any sphere of government?

YES	NO X
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If yes, contact the KZN Department of Economic Development, Tourism and Environmental Affairs to obtain clarity regarding the process requirements for your application.

If no, describe the emissions in terms of type and concentration:

Dust will be produced during the construction phase as well as emissions from construction vehicles accessing the site. The vehicle emissions will be comprised primarily of Carbon Dioxide (CO<sub>2</sub>) and will be of a low concentration.

### 13.4. Generation of noise

Will the activity generate noise?

YES X	NO
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If yes, is it controlled by any legislation of any sphere of government?

YES	NO X
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If yes, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

If no, describe the noise in terms of type and level:

The proposed activity will generate noise during the construction phase from construction vehicles and equipment. It is not expected that noise levels during construction and operation will exceed 85dBa.

Should activities that generate high levels of noise be required, nearby residents must be notified of the activities prior to the event. Workers will be trained regarding noise on site and construction hours will be kept to working hours (07h00 to 17h00). Work should not continue on weekends, after hours or public holidays, unless prior consent is obtained.

## Basic Assessment Report

### 14. WATER USE

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

Municipal X	water board	groundwater	river, stream, dam or lake	other	the activity will not use water
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

	N/A	
Does the activity require a water use permit from the Department of Water Affairs?	YES X	NO

This proposed activity requires a Water Use License Application (WULA) as deemed necessary by the Department of Water Affairs. Due to the extensive range of the CAB sites, the DWA has approved a single WULA be carried out for the entire Umlazi area, proof of the application for the WULA will be appended to the Final BAR.

If YES, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this report.

### 15. ENERGY EFFICIENCY

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

The proposal is for sewer reticulation and as such no design measures are available to ensure the activity is energy efficient.

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

It is recommended that energy saving light bulbs be used in the ablution facilities as well as translucent sheets for roofing in order to maximise use of sunlight during the day.

## SECTION C: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

- Subsections 1 - 6 below must be completed for each alternative.

#### 1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1: E/SE CAB Sites (refer to Appendix A for Google Earth Imagery)

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

Alternative S1: S/SW CAB Sites (refer to Appendix A for Google Earth Imagery)

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

Alternative S1: N/NE CAB Sites (refer to Appendix A for Google Earth Imagery)

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

Alternative S2 (if any): N/A

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

Alternative S3 (if any): N/A

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

### 2. LOCATION IN LANDSCAPE

Indicate the landform(s) that best describes the site (Please cross the appropriate box).

Alternative S1 (preferred site) E/SE CAB sites:

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

Alternative S1 (preferred site) S/SW CAB sites:

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

Alternative S1 (preferred site) N/NE CAB sites:

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

Alternative S1 (preferred site) Central CAB sites:

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

Alternative S2 (if any): N/A

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

Alternative S3 (if any): N/A

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

### 3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Has a specialist been consulted for the completion of this section?

<del>YES</del>	NO
----------------	----

If YES, please complete the following:

Name of the specialist:

Ryan Edwards from GCS Water and Environmental Consultants
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## Basic Assessment Report

Qualification(s) of the specialist:	Available on request.		
Postal address:	4a Old Main Road, Judges Walk, Kloof		
Postal code:	3610		
Telephone:	031 764 7130	Cell:	-
E-mail:	ryane@gcs-sa.biz	Fax:	031 764 7140
Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
If YES, specify and explain:	n/a – although the site is located within the KZN Coastal Belt vegetation unit, the natural vegetation on site has been cleared and totally transformed by the Umlazi P and Q informal settlement. The only vegetation that remains is secondary alien plants dominated by riparian vegetation. No intact primary KZN Coastal Belt vegetation is present.		
Are there any special or sensitive habitats or other natural features present on any of the alternative sites?	<input checked="" type="checkbox"/> YES		<input type="checkbox"/> NO
If YES, specify and explain:			
Are any further specialist studies recommended by the specialist?	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
If YES, specify:	n/a		
If YES, is such a report(s) attached in <u>Appendix D</u> ?	<input checked="" type="checkbox"/> YES		<input type="checkbox"/> NO

Signature of specialist: See signature on Wetland Report attached under Appendix D.      Date: -

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

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

### 3.1 Desktop Wetland Assessment Report

Due to the degraded state of the watercourse, the EAP enquired with the assessing officer whether a full wetland impact assessment was deemed necessary. The assessing officer thereby confirmed that a wetland study was necessary, however the study may take the form of 'a preliminary study'. If the study revealed significant adverse impacts on the wetland then a fully comprehensive study would be required. Below is the summary and findings of the desktop wetland assessment. Since the specialist concluded that the impacts were "generally of medium-low significance and acceptable", no comprehensive study was considered necessary.

#### 3.1.1. Summary of Findings of Wetland Assessment

The specialist found that the Mlazi and Isipingo River catchment will be directly impacted by the proposed development of CABs in the Umlazi area. It was found that majority of the watercourses within these catchments comprised of highly disturbed and incised stream and river channels bordered by disturbed riparian zones and wetland. However, despite the intense transformation of the watercourses, most of these are anticipated to provide some ecosystem services related to the regulation and maintenance of freshwater hydro-geomorphic processes.

#### 3.1.2 Summary of Impacts

The main potential impacts of the proposed development on the integrity of the identified watercourses were assessed and included the following:

- Direct Disturbance impacts related to the clearing and disturbance to watercourses during construction and establishment of CABs within the watercourse units and CABs that lie in close proximity (within 10m) of the watercourses. These impacts were assessed to being medium and generally unacceptable without proper mitigation. Mitigation for these impacts include:
  1. The restriction of CAB establishment within the watercourses as delineated;
  2. The establishment of a 20m buffer zone between the outer edges of the watercourses and CABs and a 10m buffer zone where 20m is not possible; and
  3. Proper demarcation of the construction area which prevents excessive disturbance to the riparian and wetland areas in close proximity to the proposed development.
  4. Hardened surfaces in the operation phase is likely to increase surface water run-off.
- Erosion and Sedimentation impacts - Construction activities such as vegetation clearing and exposure of bare soil to the elements will contribute to an increase in the already high levels of erosion and sedimentation within the watercourses. Mitigation measures include:
  1. Clearing activities must be undertaken during work times and during permitting weather conditions and unnecessary clearing must be strictly prohibited; and
  2. All construction activities should be scheduled to minimise the duration of exposure to bare soils on site especially on steep slopes.
  3. Operation impacts relating to increased surface water run-off can be mitigated by the development of stone-filled infiltration ditches rather than into underground piped systems into which surface water can be redirected.

Other mitigation measures for this impact includes regular site inspection especially following an intense rainfall event and rehabilitate immediately if necessary and a post-construction audit to be carried out following the completion of construction.

- Water Quality Impacts – Construction activities such as cement mixing, diesel and oil spills from machinery, poor management of hazardous materials and waste will likely result in the contamination of soil and runoff and ultimately the pollution of major rivers such as the Isipingo, Mbokodweni and Mlazi Rivers. During operation impacts such as sewer blockages and leaks will result in decreased water quality of the aforementioned rivers. This impact was assessed to be of medium-low significance and acceptable without proper mitigation. Mitigation measures include:
  1. Cement mixing on impermeable surfaces;
  2. Proper handling and storage of hazardous and non-hazardous waste and chemicals;
  3. Vehicle maintenance should not occur on site;
  4. Operation impacts must be mitigated mostly by avoiding development within watercourses and the 1:100 year floodline.
  
- Cumulative impacts (impacts to downstream systems) – the cumulative effect of all the erosion, sedimentation and water quality impacts mentioned above will result in a degeneration of ecosystem integrity and functioning of the local freshwater systems of the Isipingo, Mbokodweni and Mlazi Rivers. However, these three river systems are already in a severely degraded state and downstream ecosystems would be negatively impacted by the proposed development as well as other activities in the area. These impacts were assessed to be of medium significance and generally unacceptable without proper mitigation and medium-low significance and acceptable (but undesirable) following mitigation.

## Basic Assessment Report

### GROUND COVER

Has a specialist been consulted for the completion of this section?

YES	<del>NO</del>
-----	---------------

If YES, please complete the following:

Name of the specialist:			
Qualification(s) of the specialist:			
Postal address:			
Postal code:			
Telephone:		Cell:	
E-mail:		Fax:	

Are there any rare or endangered flora or fauna species (including red data species) present on any of the alternative sites?

YES	<del>NO</del>
-----	---------------

If YES, specify and explain:

N/A
-----

Are there any special or sensitive habitats or other natural features present on any of the alternative sites?

YES	<del>NO</del>
-----	---------------

If YES, specify and explain:

N/A
-----

Are any further specialist studies recommended by the specialist?

YES	<del>NO</del>
-----	---------------

If YES, specify:

N/A
-----

If YES, is such a report(s) attached in [Appendix D](#)?

YES	NO
-----	----

Signature of specialist:		Date:	
--------------------------	--	-------	--

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

Natural veld - good condition <sup>E</sup>	Natural veld with scattered aliens <sup>E</sup>	Natural veld with heavy infestation <sup>E</sup>	Veld dominated by alien species <sup>E</sup> X	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil X

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

According to the wetland specialist report the natural vegetation onsite has been cleared and totally transformed by formal and informal residential urban development within the greater Umlazi area. In general the only vegetation that remains is secondary alien plant dominated wetland and riparian vegetation. No intact, primary KZN Coastal Belt vegetation was present at any of the proposed CAB sites.

### 5. LAND USE CHARACTER OF SURROUNDING AREA

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

Land use character			Description
Natural area	YES	NO	D'MOSS is located to the north, south and east of

## Basic Assessment Report

	X		the proposed study area however no infrastructure falls within the delineated D'MOSS area.
Low density residential	YES	NO X	
Medium density residential	YES X	NO	Majority of the CAB sites are in close proximity to residential areas. The development will result in positive impacts for the area as it will minimise and/or prevent contamination of nearby watercourses and the general standard of living in the area.
High density residential	YES	NO X	
Informal residential	YES X	NO	The site is situated within the informal settlements of Umlazi P and Q.
Retail commercial & warehousing	YES X	NO	
Light industrial	YES	NO X	
Medium industrial	YES	NO X	
Heavy industrial	YES	NO X	
Power station	YES	NO X	
Office/consulting room	YES	NO X	
Military or police base/station/compound	YES	NO X	
Spoil heap or slimes dam	YES	NO X	
Quarry, sand or borrow pit	YES	NO X	
Dam or reservoir	YES	NO X	
Hospital/medical centre	YES	NO X	
School/ creche	YES X	NO	A few of the CAB sites are situated within 500m of a school however the construction will have no impact on the school or the pupils.
Tertiary education facility	YES	NO X	
Church	YES X	NO	There are a few small churches in the area but none will be impacted upon by the construction.
Old age home	YES	NO X	
Sewage treatment plant	YES	NO X	
Train station or shunting yard	YES	NO X	
Railway line	YES X	NO	There is a railway line approximately 70m West of Site number 73.
Major road (4 lanes or more)	YES	NO	

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		X	
Airport	YES	NO X	
Harbour	YES	NO X	
Sport facilities	YES X	NO	There is a sports field approximately 200m away from site 57 (SE) and 60 (NE).
Golf course	YES	NO X	
Polo fields	YES	NO X	
Filling station	YES X	NO	
Landfill or waste treatment site	YES	NO X	
Plantation	YES	NO X	
Agriculture	YES	NO X	
River, stream or wetland	YES X	NO	The proposed prefabricated toilet platforms fall within 32metres of a watercourse. The streams and tributaries with this area form part of the Mlazi River Catchment.
Nature conservation area	YES	NO X	
Mountain, hill or ridge	YES X	NO	Some of the sites occur on the side slope of a mountain which are already transformed by the informal settlements.
Museum	YES	NO X	
Historical building	YES	NO X	
Protected Area	YES	NO X	
Graveyard	YES	NO X	
Archaeological site	YES	NO X	
Other land uses (describe)	YES	NO X	

### 6. CULTURAL/HISTORICAL FEATURES

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

YES	<del>NO</del>
-----	---------------

If YES, contact a specialist recommended by AMAFA to conduct a heritage impact assessment. The heritage impact assessment must be attached as an appendix to this report.

Briefly explain the recommendations of the specialist: n/a

Will any building or structure older than 60 years be affected in any way?

YES	<del>NO</del>
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## Basic Assessment Report

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	<del>NO</del>
-----	---------------

If YES, please submit the necessary application to AMAFA and attach proof thereof to this report.

### SECTION D: PUBLIC PARTICIPATION

Public Participation commenced on 16 March 2014. All proof of public participation has been included in Appendix G. Signboards were placed around the sites and along the main roads surrounding Umlazi P and Q. Notices were hand delivered to members residing in the local community.

The following authorities and interest groups were notified of the application: Department of Water Affairs (DWA), Ezemvelo KZN Wildlife and eThekweni Municipality. The Ward Councillors were also notified telephonically of the proposed project. The Background Information Document was distributed to all I&APs.

The notice of application was advertised in the Mercury (Regional newspaper) on 26 March 2014 and in the Eyethu newspaper (local) on 28 March 2014.

Should a meeting be requested, it may be held with registered interested and affected parties (I&APs).

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
  - (i) the site where the activity to which the application relates is or is to be undertaken; and
  - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
  - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
  - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
  - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
  - (v) the local and district municipality which has jurisdiction in the area;
  - (vi) any organ of state having jurisdiction in respect of any aspect of the activity (as identified in the application form for the environmental authorization of this project); and
  - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
  - (i) one local newspaper; or
  - (ii) any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or district municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official Gazette referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—

## Basic Assessment Report

- (i) illiteracy;
- (ii) disability; or
- (iii) any other disadvantage.

### 2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
  - (i) that an application for environmental authorization has been submitted to the KZN Department of Agriculture & Environmental Affairs in terms of the EIA Regulations, 2010;
  - (ii) a brief project description that includes the nature and location of the activity to which the application relates;
  - (iv) where further information on the application can be obtained; and
  - (iv) the manner in which and the person to whom representations in respect of the application may be made.

### 3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

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

Advertisements and notices must make provision for all alternatives.

### 4. DETERMINATION OF APPROPRIATE PROCESS

The EAP must ensure that the public participation process is according to that prescribed in regulation 54 of the EIA Regulations, 2010, but may deviate from the requirements of subregulation 54(2) in the manner agreed by the KZN Department of Economic Development, Tourism and Environmental Affairs as appropriate for this application. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate.

Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

### 5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before this application is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations (regulation 57 in the EIA Regulations, 2010) and be attached as Appendix E to this report.

### 6. PARTICIPATION BY DISTRICT, LOCAL AND TRADITIONAL AUTHORITIES

District, local and traditional authorities (where applicable) are all key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of this application and provided with an opportunity to comment.



## Basic Assessment Report

Has any comment been received from the district municipality?

YES	NO
	X

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

N/A

Has any comment been received from the local municipality?

YES	NO
X	

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

Comments were received from the eThekweni Municipality regarding the Notice of Application and the Background Information document that was sent out to all I&APs. This Draft BAR addresses all the comments made and includes all the necessary information.

Has any comment been received from a traditional authority?

YES	NO
	X

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

N/A

### 7. CONSULTATION WITH OTHER STAKEHOLDERS

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application and be provided with the opportunity to comment.

Has any comment been received from stakeholders?

YES	NO
	X

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

N/A

## Basic Assessment Report

### SECTION E: IMPACT ASSESSMENT

The assessment of impacts must adhere to the requirements in the EIA Regulations, 2010, and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

#### 1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No comments have been received since this is the Draft BAR however the Comments and Response Table will be included in Appendix E of the Final BAR.

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

No comments have been received since this is the Draft BAR however the Comments and Response Table will be included in Appendix E of the Final BAR.

#### 2. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

##### 2.1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN PHASE

###### Non-compliance with legislative requirements

During the planning and design phase of the proposed development, compliance with legal requirements is carefully considered and integrated into the design and location of the CABs in order to avoid non-compliance and delays in the Basic Assessment Process. Foreseen issues are planned for and dealt with at this phase and contingency plans are developed for unforeseen impacts and delays.

###### Notification of the proposed development to all I&AP

At this phase all I&APs must be informed of the proposed development. Impacts to timelines may be experienced if this procedure isn't carried out efficiently and thoroughly. In general, processes such as the Basic Assessment process are delayed due to insufficient notification of the development.

###### Impacts resulting from CAB locations

CAB sites were chosen according to the need for proper sanitation in the Umlazi P and Q area (ie where no form of sanitation exists). They were strategically located in close proximity to the existing bulk sewer line and outside of the watercourses and 1:100 year floodline. However these locations are also dependent upon surrounding land owner approval as well as feasibility of the CAB at a specific point. CAB sites may be added or removed if any unforeseen impacts arise as these sites are conceptual and require in-depth assessment prior to development.

In addition it is important to note that the geographic co-ordinates for the CAB sites indicate the centre point of the CAB, thus the cab can be moved approximately 50m in any direction from the centre point should the need arise. Impacts were also assessed at and in the immediate vicinity of the individual CAB sites.

###### Impacts arising from design and technology options

The design and technology options for the CABs were based on the location of the sites to the existing sewer line. Thus the sewer discharge option was chosen to be implemented across these sites. If this option cannot be implemented in any of the sites, then the site would be moved or removed within or from the group respectively. These movements or removal of the sites can have impacts on the timeline by causing delays in the process.

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Basic Assessment Report

2.2. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION PHASE

Description Of Environmental Issues Identified, 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 [Regulation 22 (2) (i-k)].

a. Site alternatives

List the potential impacts associated with site alternatives that are likely to occur during the construction phase:

Alternative A1 and S1 (preferred alternative)

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
ENVIRONMENTAL IMPACTS										
SOIL										
Soil degradation	Direct	Local	Construction phase (short-term)	Yes- prevented and managed	No	Medium	High	Due to construction activities, soil in and around the proposed site can become eroded, degraded, compacted and destabilised.  As a general principle, contractors must limit vegetation clearing to the workable corridor/site along the pipelines and CABs only. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation of the watercourses. Only vegetation that needs to be removed to accommodate the proposed infrastructure must be removed in a phased and controlled manner. A site specific EMPr has been designed to manage construction activities and is attached under Appendix F.	Low	Low
Soil	Direct	Local	Construction	Yes- prevented	No	Medium	High	Soil contamination during the		

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## Basic Assessment Report

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Contamination			phase (short-term)	and managed				<p>construction phase occurs as a result of accidental spills or leaks and mixing of cement on permeable surfaces, resulting in product seeping into the ground and potentially moving into the soil and groundwater.</p> <p>Mixing of cement will be done on an impervious surface and away from areas where run-off can enter into stormwater drainage lines or streams to prevent contamination.</p> <p>In addition construction vehicles and machinery must be well maintained at all times to prevent seepage of oil and fuel into the soil. Drip tray must be used where necessary.</p> <p>Construction must be monitored by an independent ECO who must monitor compliance with the construction EMP.</p>		
Destabilisation and erosion of stockpiled materials	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	Material must be stockpiled in such a way that it cannot fall or cause injury or damage to properties or the natural environment. Stockpiles must not exceed 2m in height and must be covered if exposed to heavy wind or rain. Stockpiles must not be located in close proximity to any streams or drainage lines and must not be	Low	Low

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## Basic Assessment Report

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								<p>allowed to erode into these features.</p> <p>Alternatively, low walls or berms must be constructed around the stockpiles. A site-specific Environmental Management Programme (EMPr) has been designed to manage construction activities (Appendix F).</p>		
<b>STORMWATER</b>										
Obstruction to stormwater flow	Direct	Local	Construction phase (short-term)	Yes – can be prevented	No	Medium	High	<p>During construction, the storage of excavated material could obstruct the flow of surface water runoff and structures such as hessian bags, silt curtains etc are to be put in place to ensure that sedimentation does not occur and additional waste is not disposed of in the watercourse.</p> <p>However it is unlikely that the construction activities will significantly adversely impact the already degraded state of the existing watercourse but instead will have a positive impact on watercourses as the upgraded facilities would prevent further contamination of the watercourses and ablation facilities would also provide better sanitation for the community.</p> <p>Construction must be monitored by an independent ECO who must</p>	Low	Low

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## Basic Assessment Report

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								monitor compliance with the construction EMPr (Appendix F).		
Stormwater contamination	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No, however there is a potential for resources to be lost if the River is contaminated with cement.	Medium	High	<p>Cement mixing and washing of construction vehicles could result in stormwater contamination.</p> <p>Cement mixing must take place on a hard surface or cement mixing trays must be used for this purpose. Cement mixing must not be permitted to occur where run-off can enter stormwater drainage lines or streams.</p> <p>In addition no vehicle washing must occur on site unless in a designated wash bay which must then be constructed. Wash bays must be installed with sand and grease traps if required on site.</p> <p>This must be controlled through an EMPr (Appendix F).</p>	Low	Low
<b>FLORA</b>										
Proliferation of weeds	Direct	Local	Long-term	Yes – can be prevented.	No	Medium	High	<p>Due to site clearing and soil disturbance on a large scale, weeds become prevalent onsite.</p> <p>Following completion of construction, an alien removal programme must be implemented. The site must be re-vegetated with indigenous vegetation.</p>	Low	Low

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## Basic Assessment Report

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								The top soil must be used for rehabilitating the site and must be kept free of alien vegetation.		
Destruction and/or removal of indigenous flora	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	Medium	<p>Construction activities will disturb flora in the area. Vegetation clearing could result in the loss of naturally occurring plant species however, during an initial site visit there were no species of significance that was identified</p> <p>Weeds are prevalent in the area and along the watercourse which will be cleared during construction resulting in a positive impact.</p> <p>Vegetation should only be cleared from the disturbed area where trenching is to take place. It is unlikely that a significant amount of indigenous vegetation will be removed. But where vegetation clearing is unavoidable then disturbed area is to be rehabilitated with indigenous species.</p> <p>Appendix D contains further recommendations by the Wetland Specialist.</p>	Low	Low
<b>FAUNA</b>										
Potential loss or disturbance to	Direct	Local	Construction phase (short-	Yes – can be prevented.	No	Low	Low	The displacement or loss of small faunal species could be a potential	Low	Low

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## Basic Assessment Report

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fauna present within the proposed site			term)					<p>result of construction activities.</p> <p>This proposed construction is a linear activity, in the form of a comparatively narrow pathway extending across the landscape. At the landscape level, the disturbance is relatively small. Due to human presence and the disturbed landscape, it is unlikely that fauna species exist in large numbers at these sites, however, contractors and staff must be trained to avoid impacts on fauna. This must be monitored with an EMPr (Appendix F).</p>		
<b>SENSITIVE ENVIRONMENTAL AREAS (i.e. watercourses)</b>										
Potential pollution and contamination of streams and rivers with cement and other hazardous materials used during construction.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	<p>Pollution and contamination of the watercourses is to be avoided at all times. It is noted that the stream units are highly degraded with alien vegetation dominating the landscape.</p> <p>Designated concrete mixing areas and storage areas for any hazardous materials must be assigned. These areas must not lie directly adjacent to the watercourses. Cement mixing is also not permitted in any area where runoff can enter the Stream Units.</p> <p>Construction must be managed through the site specific EMPr (Appendix F) and compliance must be</p>	Low	Low

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## Basic Assessment Report

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								monitored by an independent ECO.		
Impact on D'MOSS areas and the loss of open space	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	<p>Natural open spaces within the Umlazi area are constantly being transformed by informal settlements thus the proposed development will occur within the informal settlement, thus contributing to the cumulative impact of the loss of open space.</p> <p>In addition, as with the abovementioned impact, development in D'MOSS areas are restricted and any construction activities should be strictly prohibited in the D'MOSS area and should not extend pass the demarcated construction area.</p>		
Development within the 1:100 year floodline	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	<p>The 1:100 year floodline must be determined in the planning phase and demarcated in the construction phase.</p> <p>All construction activities are to take place outside of the 1:100 year floodline where possible as well as the required buffer zone from a watercourse. These buffer zones promote stormwater management.</p> <p>If necessary a map is to be made available to all construction workers</p>		

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## Basic Assessment Report

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								which indicates the proposed development in relation to the 1:100 year floodline so as to avoid activities such as stockpiling within the demarcated area		
Erosion from vegetation clearing and exposure of bare soil to the elements resulting in sediment deposition within the drainage lines and stream units during construction.	Direct	Local	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	<p>Recommendations for the mitigation of this impact have been included in the attached EMPr but include erosion control measures (silt fences, sandbags etc.) and rehabilitation measures.</p> <p>As soon as possible after construction, exposed areas that have resulted from the construction activities must be re-vegetated to assist in the prevention of erosion.</p> <p>Method statements for watercourse crossings are to be submitted to the independent ECO prior to construction commencing. Further recommendations can be found in Appendix D (Specialist Report).</p>	Low	Low
Littering in the watercourses, contributing to the degradation of the watercourses within the study site.	Direct	Local with the potential to impact regionally should the pollution wash	Construction phase (short-term)	Yes – can be prevented and managed.	No	Medium	High	<p>Illegal dumping is not permitted within the site and site staff must remove any waste and litter from the construction site at the end of each day.</p> <p>The waste must be appropriately stored within the site camp and</p>	Low	Low

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		down-stream.						disposed of at a licenced landfill. Safe disposal certificated must be obtained and retained onsite.		
<b>WASTE – NON HAZARDOUS AND GENERAL SOLID WASTE</b>										
Generation, storage and disposal of general and non-hazardous waste	Direct	Local (within construction site)	Construction phase (short-term)	Yes prevented and managed	No	Medium	High	<p>General solid waste that is expected to be generated during construction includes:</p> <ul style="list-style-type: none"> <li>• Household waste e.g. paper, plastic, glass;</li> <li>• Building rubble e.g. bricks, concrete; and</li> <li>• Scrap metal.</li> </ul> <p>All solid waste (building rubble and scrap metal) generated during the construction phase will be first categorised by the construction contractor team then stored in designated waste receptacles. The waste will be cleared regularly by a recognised waste contractor or disposed of at the closest municipal landfill site.</p> <p>All general waste material (apart from rubble and hazardous materials) will be contained in lined general waste bins and disposed of via the municipal waste system. Litter</p>	Low	Low

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## Basic Assessment Report

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								<p>collection bins will be provided within the Contractors camp at convenient intervals and will be cleared regularly.</p> <p>Separation and recycling of waste must be practised and re-use of waste materials can be done where possible. Burning or burying of waste will NOT be allowed. Unutilised, construction materials will be removed once construction has ended, e.g. crushed stone may not be left or strewn around the site. Excavated material during earth works will be stockpiled on site. If the material is suitable for fill material, it will be utilised as backfill on the site.</p> <p>General or solid waste must not affect the surrounding natural environment at any time and must always be stored away from streams, rivers and natural habitats if any.</p>		
Generation, storage and disposal of hazardous waste.	Direct	Local (within construction site)	Construction phase (short-term)	Yes impact can be prevented and managed.	No	Medium	High	Hazardous waste (eg oil rags, oil cans, paint cans etc) will be stored in separate lined waste bins or on a hard surface within a bunded area of the construction camp and disposed off at the closest designated hazardous landfill site. All safe disposal certificates must be obtained and kept on site at all times. This	Low	Low

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## Basic Assessment Report

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								<p>must be monitored through an EMPr (Appendix F). .</p> <p>Hazardous waste must not affect the surrounding natural environment at any time and must always be stored away from streams, rivers and natural habitats if any.</p> <p>The hazardous waste area will be clearly marked as hazardous and flammable.</p>		
Littering around the site.	Direct	Local	Construction phase (short-term)	Yes impact can be prevented managed	No	Medium	High	<p>Littering on the site should be kept to a minimum and general housekeeping must be enforced.</p> <p>General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction.</p>	Low	Low
Inappropriate use of the surrounding environment and residents properties as toilets by contractors.	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	<p>Staff must be provided with chemical toilets. The toilet waste must be disposed of at an appropriate disposal site and safe disposal certificates must be obtained.</p> <p>The staff may not use the bush or residents properties as toilets. Workers must be briefed by the person in charge of managing construction activities on the “do’s and don’ts” on the property, when</p>	Low	Low

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## Basic Assessment Report

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								workers arrive at the site. This must be repeated in weekly toolbox talks and monitored through a site specific EMPr (Appendix F).		
Improper disposal of toilet waste from chemical toilets resulting in contamination of the surrounding environment.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Chemical toilets must be placed within the construction camp and not in close proximity to the stream units. The chemical toilets must be provided by a registered company and all effluent must be regularly disposed of at a licenses facility. Safe disposal certificates must be kept on record.	Low	Low
Increase waste to landfill site.	Cumulative	Regional	Construction phase (short-term)	Yes – can be managed	No	Low	High	Due to the nature of the activity, waste is anticipated to be minimal. Where possible, recycling of waste will take place to limit the amount of waste being added to the landfill site.	Low	Low
<b>SPILLAGE OF HAZARDOUS CHEMICALS / FUELS</b>										
Risk of spills from construction equipment (oils, fuels, cement etc) contaminating soil and stormwater.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Any construction equipment that could leak oil must be placed on a suitably sized drip tray. Stationary construction vehicles must have a drip tray placed beneath them and any oil leaks must be controlled and attended to over a drip tray. All equipment must be in good working order to reduce the likelihood of oil leaks occurring. Any re-fuelling of equipment must occur on a hardened surface, within a designated re-fuelling area where any spills can be contained. Construction must be	Low	Low

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## Basic Assessment Report

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								monitored by an independent ECO must monitor compliance with the construction EMPr.		
<b>NOISE</b>										
Noise generated by construction workers, machinery and construction vehicles disturbing surrounding residents and environment.	Direct	Local (within construction site)	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Excessive noise must be controlled on site. Workers will be trained regarding noise generation on site and construction hours will be kept to working hours (07h00 to 17h00).The construction activities will be monitored by an ECO who will ensure compliance with the construction EMPr. All precautions must be taken to ensure that noise generation is kept to a minimum. If excessive noise is expected during certain stages of the construction, nearby residents must be notified prior to the event.	Low	Low
<b>AIR QUALITY</b>										
Emissions generated from construction vehicles	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Low	High	The only emissions that will be generated will be from construction vehicles which will be minimal and is not expected to significantly affect the surrounding communities or the environment.  Regular maintenance of construction vehicles must be undertaken to ensure they are good working order and thereby reducing the amount of	Low	Low

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## Basic Assessment Report

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								emissions generating from vehicles.		
Generation of dust being a nuisance to surrounding residents.	Direct	Local	Construction phase (short-term)	Yes – can be managed	No	Medium	High	Emissions will only be generated from construction vehicles. Emissions will be minimal and not expected to significantly affect surrounding communities. Dust control measures must however be implemented to ensure that excessive dust levels are not experienced on site. Measures to control dust generated during construction must be put controlled through the EMPr i.e. cleared surfaces to be replanted as soon as possible behind the working front or dampening of dirt access roads, stockpiles and cleared areas. The dust levels must be kept below the required SANBS standard to ensure minimal impact on the surrounding community and the environment.	Low	Low
<b>RESOURCE USE &amp; CONSERVATION</b>										
Sourcing of raw materials i.e.: (gravel, stone, sand, cement and water) from unsustainable sources resulting in illegal sand mining and mining	Direct	Local (potential to become regional)	Construction phase (short-term)	Yes – can be managed	No	Low	High	All materials must be obtained from a registered and sustainable source and all delivery notes and slips must be made available to the ECO, where applicable. Municipal water will most likely be used for dust suppression however should water be extracted from the watercourse, the amount must not exceed 50 000 litres per day. If this limit is exceeded, a permit is required from DWA.	Low	Low

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## Basic Assessment Report

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operations causing significant environmental damage.										
<b>TRAFFIC</b>										
Traffic impacts associated with asset delivery and required construction material	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	<p>The co-ordination of movement of vehicles on and off site to reduce risks and prevent congestion on roads in the vicinity of the site.</p> <p>Peak traffic hours (7am to 9am and 4pm to 6pm) should be avoided.</p> <p>Large vehicle turning must take place onsite and not in the adjacent roads. In cases where activities may obstruct traffic, local traffic officials must be contacted.</p> <p>Construction vehicles moving through residential areas must maintain a prescribed speed (as per the rules of the road) and no-go areas for construction must be clearly demarcated.</p> <p>Clear signs, flagmen and/ signals must be set up where necessary. Access to residential properties shall</p>	Low	Low

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## Basic Assessment Report

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								be maintained and speed limits established. Where roads are used by children to reach school, vehicle traffic must be minimized during hours that children are travelling to and from school.		
<b>SOCIO-ECONOMIC</b>										
Interruption or damage to services (electricity, water etc.).	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Low	High	This impact can be fully mitigated against by identifying services prior to construction and avoiding damage to existing services. Alternatively, if service disruption is unavoidable, the parties affected must be notified in advance. A site-specific EMPr has been designed to manage construction activities (Appendix F).	Low	Low
Destruction to property in the vicinity of construction activities	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	Surrounding neighbours must be consulted prior to construction to discuss the construction process and potential impacts on nearby properties, as well as opportunities regarding employment. Should unplanned impacts occur, the contractor will be responsible for the necessary repairs.	Low	Low
Health and Safety (Occupational and surrounding	Direct	Local	Construction phase (short-term)	Yes – can be prevented.	No	Medium	High	During construction, possible impacts on human health and safety could occur as a result of accidents and unplanned events that may occur.	Low	Low

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residents)								<p>There is a risk of public injury may occur associated with the movement of materials during construction/installation.</p> <p>In addition, construction workers must be made aware of the areas where safety may be a concern. These areas must be clearly demarcated during the day and night. Contractors must ensure that all workers are made aware of the associated dangers through an awareness / weekly toolbox training programme. This must be monitored through a site specific EMPr (Appendix F).</p>		
Positive impact. Potential temporary employment during construction.	Direct	Local	Construction phase (short-term)	Positive impact no mitigation required. Skilled local community members may be granted employment during the construction phase and existing workers employed by the contractor may have the contract of employment extended due to the influx of new work.						
<b>CULTURAL</b>										
Potential unearthing and damage to items of cultural or historical significance	Direct	Local	Construction phase (short-term)	Yes – can be managed.	No	Low	High	If any item of cultural or historical significance are discovered construction must cease immediately and AMAFA must be contacted. Construction should cease until further notice. Staff must be made aware of what archaeological objects of significance may look like, e.g. pottery, etc.	Low	Low

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## Basic Assessment Report

### No-Go Alternative:

Nature of Impact (potential)	Direct, Indirect or cumulative	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
<b>IMPACTS OF THE NO-GO OPTION</b>										
There will be no adverse construction impacts however positive impacts such as employment opportunities and improved standard of living will not be created. Residents and households in this area will continue to have limited access to waterborne sewerage connections and will be exposed to unsanitary conditions with a high risk of infection by excreta-related diseases. In addition there will be continued eutrophication within the river and stream units from the flow of sewerage from pit latrines directly into the river and stream systems.										

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### 2.3. IMPACTS THAT MAY RESULT FROM THE OPERATIONAL PHASE

Alternative A1 and S1 (preferred alternative)

List the potential impacts associated with site alternatives that are likely to occur during the operational phase:

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
<b>IMPACTS FROM THE OPERATION OF CABS AND ASSOCIATED INFRASTRUCTURE</b>										
Subsiding of the existing pipeline as a result of increased volume of sewerage resulting in contamination of the drainage lines and stream units including the surrounding area.	Direct	Local with the potential for a regional impact should contamination occur.	Short – term	Yes – can be prevented and managed.	No	Medium	High	<p>Pipelines have the potential to subside especially at the stream and drainage line edges. However, there will not be an installation of a new bulk sewer line as an existing one will be used.</p> <p>The existing pipeline must be regularly inspected as part of a maintenance/ inspection procedure to ensure 100% integrity of the structure. eThekweni Water and Sanitation (EWS) employ and train a local community member to be a “caretaker” for the toilet blocks. The caretaker is responsible for operation maintenance and general up keep. The caretaker is to inform EWS of any maintenance issues.</p>	Low	Low
The increased potential for leakages at joints in the existing pipeline and manhole	Direct	Local with the potential for a regional impact should contamination occur.	Long – term	Yes – can be prevented and managed.	No	Medium	High	It is anticipated that pipelines will develop cracks over time and this will be accelerated if the pH is above 10 or less than 7. It is recommended that a maintenance procedure be implemented to ensure that the	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
connections resulting in soil / groundwater contamination due to development of cracks in the pipelines.								pipelines are checked on a regular basis. Should any cracks be identified, the portion of pipe must be immediately replaced to ensure that there is no surface or groundwater contamination. The pipeline must be designed as per engineering specifications. The pipeline must be constructed according to the relevant SABS standards. Should any cracks be identified, it is recommended that a groundwater study be conducted to determine if there has been any contamination.		
Potential blockage increasing the risk of spillages along the pipe as well as manhole overflow.	Direct	Local	Long - term	Yes – can be prevented.	No	High	High	The caretaker is to inform EWS of any operational maintenance. The area around any proposed manholes which are constructed within close proximity to the stream units should be shaped so as to produce a wise, saucer-shaped depression, up to 15m in diameter, in which sewage overflow might collect. The maintenance programme must specify the frequency and timing of manhole inspections, aimed at identifying and clearing up material deposited during overflow events. Ablution facilities must also be included in the maintenance programme and must be regularly inspected for blockages and leaks. An abluion maintenance	Low	Low

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Basic Assessment Report

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								team must be set-up using local labour.		
Spill of raw sewage resulting in eutrophication of stagnant pools onsite or downstream, degradation of the local in-stream habitat, domination of particular floral species, dieback of floral and faunal species increase the competitive advantage of alien species.	Indirect	Local	Long - term	Yes – can be prevented.	No	High	High	<p>Given the current state of the watercourse, the specialist rated this impact to have moderately-low significance. The following are mitigation measures that will reduce the magnitude of surcharge events and minimise or prevent eutrophication:</p> <p>No manholes or pump station must be established within the watercourse unit and a small buffer zone should be retained between the structures and the watercourse units.</p> <p>Manholes and pump station must be located as far from the watercourse edge as possible.</p> <p>Manholes planned within 10m the manhole should be elevated (1m) above the land surface to increase storage volume during potential surcharge events and flap-gates should be installed above the watercourse (at safe locations) to ensure that blockages are confined to areas outside (upstream) of the watercourse.</p>	Low	Low

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								To reduce the risk of surcharging sewer manholes onsite and downstream, a form of gully trap should be installed at or before the connection of the toilets with the bulk line. This gully trap will block foreign objects from entering the main internal line of the site and isolate blockage problems at the source.		
Cumulative decrease in catchment-scale water quality impact on local aquatic ecology, particularly downstream, which is already experiencing water quality issues.	Indirect	Regional	Long - term	Yes – can be prevented and managed.	No	High	High	<p>This impact is assessed as medium before mitigation (acceptable but undesirable). Successful mitigation measures would be to reduce the potential impact to acceptable levels.</p> <p>The recommendations include all aforementioned mitigation measures pertaining to the water quality of the surrounding watercourses. The cumulative impact would require cumulative mitigation particularly downstream of the watercourse.</p> <p>All of these mitigation measures have been included in the attached EMPr and further recommendations can be found in Appendix D (Wetland Specialist Report).n (acceptable but undesirable). Successful mitigation measures would be to reduce the potential impact to acceptable levels.</p>	Low	Low

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## Basic Assessment Report

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								The recommendations have been included in the attached EMPr and further recommendations can be found in Appendix D (Wetland Specialist Report).		
Erosion of surrounding areas due to increase in stormwater from toilet platform sites. Runoff generated will likely follow existing erosion rills and gullies onsite or create new ones.	Indirect	Local	Operational phase (long term)	Yes – can be managed.	No	High	Medium	<p>All stormwater runoff generated by the proposed CAB platforms should be directed into stone-filled infiltration ditches rather than into underground piped systems or concrete V-channels. This will encourage infiltration across the site, provide for the filtration and removal of urban pollutants, and provide some attenuation by increasing the time runoff takes to reach low points, and reduce the energy of storm water flows within the stormwater system through increased roughness when compared with pipes and concrete V-drains.</p> <p>All CAB platforms should have a slight back-fall to divert runoff away from the edge of the fill embankments. Platform runoff must be diverted away from the platforms into the stone-filled infiltration ditches.</p> <p>Erosion protection must be installed at the new stormwater outlets if</p>	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								<p>applicable.</p> <p>All stormwater outlet structures must be located outside of the watercourses and ideally a 10-20m buffer should be established between the outlet structures and the watercourses.</p>		
Potential increase in volume of waste (sludge) sent to the South Durban Waste Water Treatment Works (WWTW).	Direct (Cumulative )	Regional	Operational phase (long term)	Yes – can be provided for.	No	High	Medium	There will be an increase in the amount of sludge directed to the South Durban WWTW however there is enough capacity to handle the increase (see proof of capacity in Appendix G).		
<b>Positive Impact.</b> Local households connection to waterborne sewerage.	Direct	Local	Long - term	Positive impact, no mitigation required. The result of the infrastructure provision is the reduced exposure to unsanitary conditions and a decrease in potential infection by excreta-related diseases in addition to the reduction in eutrophication.						
<b>Positive Impact.</b> Reduced risk to the catchment due to the containment of existing raw sewage.	Indirect	Regional	Long – term	Positive impact, no mitigation required.						
<b>Positive Impact.</b> Improved	Direct	Local	Long – term	Positive impact, no mitigation required.						

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
service delivery to the Umlazi P and Q informal settlement.										
<b>Positive Impact.</b> Improvements in the living conditions and standards for the local community through the installation of waterborne sewerage system.	Direct	Local	Long – term	Positive impact, no mitigation required.						

### No-Go Alternative:

IMPACTS OF THE NO-GO OPTION										
Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Potential for raw sewage to continue to flow from informal toilets polluting the watercourse.	Direct	Regional	Long – term	Yes – can be prevented and managed.	No	High	High	By providing formal sanitation facilities to this area of the informal settlement, the raw sewage entering the watercourse will be reduced.	Medium	Low
Continued violation basic	Direct	Local	Long term	Yes – can be managed	No	High	High	By providing formal sanitation facilities to this area the pre-requisites	Medium	Low

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## Basic Assessment Report

human rights								to fulfil the conditions for basic human rights will be met.		
No permanent employment created	Direct	Local	Long term	Yes – can be managed	No	High	High	By providing formal sanitation facilities to this area permanent employment will be created for local members of the community.	Medium	Low
Challenges faced by the eThekweni Municipality as highlighted in the IDP will continue.	Direct	Local	Long term	Yes – can be managed	No	High	Medium	The challenges highlighted in the IDP include increase in the number and range of informal settlements, poor service delivery, lack of employment and destruction to the natural environment by development not contained within the IDP. All of these aspects can be addressed on a local scale should the proposed development go ahead.	Low	Low

### 2.4. IMPACTS THAT MAY RESULT FROM THE DECOMMISSIONING OR CLOSURE PHASE

The prefabricated ablution facilities are temporary solutions to the sanitation requirements of the community in the area and are intended to be decommissioned at a later stage when formal housing developments are implemented in the area. The pipelines are highly unlikely to be decommissioned. The ablution facilities will be decommissioned in the future should the system be converted to a full water borne sewage system.

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/ reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
Potential contamination of the wetland, streams and drainage lines with raw sewage.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	It must be ensured that that all pipes and ablution facilities are pumped empty prior to decommissioning. When removing the ablution facilities and pipes, any spills or leaks must be immediately cleaned up. All piping leading to the ablutions must be carefully removed if necessary,	Low	Low

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
								ensuring that the material contained in the pipes is not allowed to leak or enter watercourses. All trenches along the pipes must be covered. If the tanks or pipes have to be washed prior to removal, the wastewater must be treated as contaminated.		
If any tanks are not completely emptied prior to decommissioning there is potential for sewage to contaminate soil and nearby water resources.	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	The tanks and pipelines must be pumped empty by an approved contractor prior to decommissioning.	Low	Low
Potential contamination of the wetland, streams or drainage lines with rubble and waste.	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	Rubble can be temporarily stored on site in a designated skip until it is ready for disposal. All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. Any rubble produced must be disposed of at a designated landfill site. This must be monitored through a site specific decommissioning EMPr.	Low	Low
Decommissioning activities causing erosion near the wetland, streams or	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	Temporary erosion control measures must be implemented to prevent erosion to any watercourse during decommissioning. All exposed areas resulting from decommissioning	Low	Low

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Basic Assessment Report

Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
drainage lines.								activities must be rehabilitated with indigenous vegetation to prevent potential erosion on the exposed areas. Decommissioning must be managed with an EMPr that has been designed specifically for the site. A site specific EMPr must be designed to guide the decommissioning process should decommissioning need to occur.		
The onsite erosion of exposed soil before rehabilitation is completed.	Direct	Local	Short – term	Yes – can be prevented.	No	Medium	High	As a general principle, contractors must limit vegetation clearing to the workable corridor/site along the pipelines only. The contractor must stabilise cleared areas to prevent and control erosion and/or sedimentation. Only vegetation that needs to be removed to accommodate the decommissioning must be removed in a phased and controlled manner.	Low	Low
Poor stormwater management during decommissioning can lead to erosion and loss of soil.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	Temporary stormwater structures i.e. the use of Hessian bags etc. must be utilised during decommissioning. Decommissioning must be monitored by an independent ECO who must monitor compliance with the decommissioning EMPr	Low	Low
Local community households will no longer be connected to	Direct	Local	Long – term	No	No	High	Low	Local community households will again have no waterborne sewage connections in close proximity resulting in community members again being exposed to potential	High	High

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Nature of Impact (potential)	Direct or Indirect	Extent of Impact	Duration of Impact	Can impact be prevented/reversed or managed?	Will irreplaceable resources be lost?	Probability before mitigation	Mitigatory Potential	Mitigation measure	Probability after mitigation	Significance after mitigation
waterborne sewerage resulting again in exposure to unsanitary conditions and an increase in potential for infection by excreta-related diseases.								disease, infection and unsanitary conditions. This impact cannot be mitigated against.		
Direct impacts on the drainage lines and streams by community members.	Direct	Local with the potential to impact regionally.	Long – term	No	No	High	Low	With no waterborne sewage, community members will again be forced to use alternative forms of effluent disposal resulting in further potential for contamination of watercourses and the surrounding environment by raw sewage. There is no mitigation measure in this respect.	High	Medium
Risk of spills from equipment (oils, fuels etc.) contaminating soil and stormwater.	Direct	Local	Short – term	Yes – can be managed.	No	Medium	High	Any demolition equipment that could leak oil must be placed on a drip tray. Construction vehicles must have a drip tray and any oil leaks must be attended to over a drip tray. All equipment must be in good working order to reduce the likelihood of oil leaks occurring. Any re-fuelling of equipment must occur on a hardened surface, within a designated re-fuelling area where any spills can be contained.	Low	Low

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## Basic Assessment Report

### 2.5. PROPOSED MONITORING AND AUDITING

For each phase of the project and for each alternative, please indicate how identified impacts and mitigation will be monitored and/or audited.

#### Alternative A1 and S1 (preferred site)

Construction phase: It is recommended that monitoring be done through monthly environmental construction audits ensuring compliance with an Environmental Management Programme (EMPr). An independent ECO must be appointed to undertake this monitoring process.

Operation phase: The applicant must ensure inspections and scheduled maintenance of infrastructure. A Post Construction Audit (PCA) must be undertaken by the ECO to ensure the EMPr requirements have been met. It is further recommended that a second PCA take place 3/4 months after rehabilitation to monitor the efficiency of the rehabilitation and erosion control.

#### Assumptions, Uncertainties and Gaps in Knowledge [Regulation 22 (2) (m)]

There are no uncertainties or gaps in the information provided and the EAP is confident that sufficient information has been provided to allow an assessment of the proposal.

### 3. ENVIRONMENTAL IMPACT STATEMENT

Environmental impact statement with a reasoned opinion as to whether the activity should be authorised or not be authorized; [Regulation 22 (2) (n)]

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

It is the opinion of the EAP that the application submitted for the proposed CABs be approved. Wetland specialist recommendations have been incorporated into the Environmental Management Programme (EMPr), which is to be strictly adhered to during construction, the proposal would result in minor environmental impacts. The activity would have a positive social impact on the local community by providing them access to formal sanitation facilities and reducing their exposure to unsanitary conditions that are currently experienced in the area. Employment opportunities for construction and maintenance of the pipelines within the local community will also benefit this area.

#### Alternative A1 and S1 (preferred alternative)

As part of eThekweni Municipality's water and sanitation projects, eThekweni Water and Sanitation propose to construct a number of toilet platforms and associated sewerage pipelines within the Umlazi P and Q informal Settlement. This application has assessed the construction of a number of toilet platforms within Umlazi P and Q which are located within 32m of a watercourse.

All potential impacts that may occur during the construction and operational phase of the pipeline have been identified in Section E above and key impacts and mitigation measures are discussed below.

The main construction impacts identified relate to the potential contamination of the watercourses through poor construction practises, lack of stormwater management and increased risk of erosion. The EMPr has



## Basic Assessment Report

been designed to mitigate pollution/contamination and should be constantly obeyed by the contractor to ensure pollution is avoided. Temporary stormwater and erosion controls must be implemented in areas susceptible to erosion (see sections 3.4 and 3.10 of the attached EMPr). Rehabilitation of disturbed areas must also be undertaken to further ensure the stability of cleared areas to prevent potential erosion and sedimentation of the stream units.

A desktop Wetland Assessment Report was undertaken by GCS Water and Environmental Consultants and is available in Appendix D. The wetland specialist acknowledged the degraded state of the stream units and associated vegetation however a number of site specific recommendations were made by the specialists which must be adhered to throughout the construction process. These have been incorporated into the attached EMPr. Recommendations were also taken into account during the design phase with the number of water crossings being reduced as well as the crossing technique being designed to avoid trenching.

In terms of the operational phase of the proposed activity, rehabilitation measures must be implemented upon completion of the construction activities. This will ensure that stream units and drainage line bank stability is maintained and that sedimentation of the stream units does not occur. The operational phase will have positive impacts for the community members as they will have access to formal sewage and ablution facilities enhancing living conditions in this area. Regular maintenance and monitoring of the pipelines and ablution facilities must be undertaken to identify and prevent any potential spills/damage to pipelines and thereby the surrounding environment during the operational phase.

The construction and operational phase of the proposed development is also anticipated to provide employment to members of the community members thus assisting in poverty reduction in this area as well as benefiting the community's health and safety.

The EMPr produced for this development is attached under Appendix F and includes methods and protocol to be followed by each of the parties involved during the construction phase (including wetland specialist recommendations). It is envisaged that, provided the EMPr is strictly adhered to during the construction process, it is not expected that the proposal will have significant impacts on the environment. In conclusion, if all the suggested mitigation methods outlined in this report are followed, then impacts can be rated as low.

### The 'No-Go' Alternative

The 'No-Go' alternative (i.e. not upgrading the sanitation facilities in the Umlazi P and Q area) will lead to the primary goal of providing sewer connections to toilet blocks in the informal settlement within eThekweni Municipality not being met. The significance of this is that the local community members will be forced to continue to use other forms of informal ablution facilities and would thus continue to be exposed to unsanitary conditions and potential excreta-related disease. While the risk of leaking sewerage pipelines would not be an impact for the no-go alternative, the watercourse would continue to receive raw sewage from the informal facilities currently in use.

It is also expected that no new employment opportunities will be created for local residents during construction and operation.

## Basic Assessment Report

### SECTION F. RECOMMENDATION OF EAP

Is the information contained in this report and the documentation attached hereto in the view of the EAPs sufficient to make a decision in respect of this report?

YES X	NO

If "NO", please contact the KZN Department of Agriculture & Environmental Affairs regarding the further requirements for your report. N/A

If "YES", please attach the draft EMPr as Appendix F to this report and list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application:

1. It is recommended that alternative A1 and S1 (i.e. formalisation of ablution facilities in Umlazi P and Q) be accepted from environmental and social perspective.
2. The applicant must ensure that mitigation measures and controls specified in the EMPr are adhered to. The construction of the pipelines and ablution facilities must be monitored by an independent ECO who should ensure compliance with the construction EMPr.
3. It is recommended that environmental construction audits be conducted on a monthly basis. In addition a pre-construction audit and post-construction audit (PCA) must be conducted. A second PCA must take place 3/4 months after rehabilitation to monitor the efficiency of the rehabilitation and erosion control.
4. The contractor and his staff must attend an environmental awareness training course, presented by the site engineer or a suitably qualified EO from the engineers / contractors, prior to construction commencing. The environmental awareness training course should cover the following key aspects: (a) basic awareness and understanding of key environmental features of the work site and the surrounding environment, (b) understanding the importance of, and reasons why, the environment must be protected, (c) ways to minimize environmental impacts, and (d) requirements of the Environmental Authorisation and EMPr. The EAP must be on hand to aid with any environmentally-based questions.
5. Construction activities must comply with designated working hours and surrounding residents must be informed prior to commencement of construction activities.
6. Emergency contact numbers must be placed at each construction site.
7. Adequate chemical toilet facilities must be provided for all staff members as standard construction practice. The chemical toilets must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record.
8. Existing infrastructure (i.e. electricity lines, water pipelines) must be identified prior to construction. Any costs associated with negative impacts to these services must be borne by the applicant and should the need arise to disrupt these services for any reason, the relevant authority must be contacted for permission and details of the disruption must be communicated to the affected residents.
9. As there are no formal stormwater drainage facilities on site, the contractor must prepare a Stormwater Control Method Statement (MS) to ensure that all construction methods adopted on site do not cause, or precipitate, soil erosion. The designated responsible person on site, as indicated in the Stormwater MS (usually the contractor) should ensure that no construction work takes place before the stormwater control measures are in place. The Stormwater MS must be submitted to the ECO prior to implementation.
10. The duration of exposed soil must be kept to a minimum and rehabilitation of the disturbed area must be initiated as soon as construction is completed.
11. Materials must be stockpiled in appropriate areas where storm water runoff cannot erode into the stockpile.
12. Dust control must be implemented throughout the construction phase.
13. Any alien vegetation found within the construction site must be cleared to ensure that invasion of disturbed

## Basic Assessment Report

areas does not occur.

14. Cement mixing must take place on a hard surface or on cement mixing trays. Cement mixing will not be permitted to occur where run off can enter the watercourses. In addition cement and fuels must be stored within bunded and hard surfaced areas. If the creation of a permanent bunded area is not feasible, these materials must be stored on drip trays capable of holding at least 110% of the spilled volume.
15. Littering must not be permitted on the site and general housekeeping must be enforced.
16. Waste must be stored in the bins within the waste collection area in the construction camp and must not be allowed to blow around the site, be accessible by animals, or be placed in piles adjacent to the skips / bins and must be disposed of at an appropriate land fill site.
17. Hazardous waste must be stored on a hard surface within a bunded area and must not be allowed to enter watercourses and the surrounding environment.
18. All excess material and rubble must be removed from the site so as not to restrict the rehabilitation process. All excess material and rubble must go to an approved, designated landfill and a safe disposal certificate must be obtained.
19. Recycling should be undertaken where possible to limit waste added to the landfill site.
20. The watercourse may not be used as a water source by staff unless water abstraction is approved and permitted by DWA.
21. A spill response procedure must be designed to manage spills during construction. Suitable spill kits must be available and staff must be made aware of the spill response procedure.
22. In the event of Heritage resources or artefacts being uncovered during construction, activities around the site must cease immediately and AMAFA must be contacted to investigate the findings.
23. A maintenance plan for the operational phase of the development must be drawn up to monitor and identify any potential spills or leaks along the pipeline or at the ablution facilities.
24. All mitigation measures outlined in the method statement for pipeline construction across the watercourse must be adhered to.
25. Piped bridges are to be used where the pipeline crosses the watercourses.
26. A spill contingency/emergency response plan must be drawn up to handle possible sewer spillages, overflows, pump station failures, etc., as well as to document the procedures that need to be followed in the event of an emergency incident
27. There may not be hunting/ fishing of wildlife or poaching of livestock on the site and no setting of snares or traps.

## Basic Assessment Report

### SECTION G: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Draft Environmental Management Programme (EMPr)

Appendix G: Other information

## Basic Assessment Report

### Appendix A – Site Plan(s)

- Topographical Map indicating the proposed site and adjacent land uses.
- Aerial image indicating the proposed site, D'MOSS, 2m contours and the 1:100 year floodline.
- Aerial image of existing services and contours in relation to the 1:100 year floodline and D'MOSS.
- Google Earth imagery indicating the location of the CAB sites.

## Basic Assessment Report

### Appendix B – Site Photographs

## Basic Assessment Report

### Appendix C – Facility Illustration(s)

- Proposed Layout of CABs (Alternative A1 and S1-preferred alternative)
- Prefabricated Toilet Layout

# Basic Assessment Report

## Appendix D – Specialist Reports



# Basic Assessment Report

## Appendix E –Comments and Responses Report

No comments received to date however comments received on the Draft BAR will be included in this Appendix for the Final BAR submission.

# Basic Assessment Report

## Appendix F – Draft Environmental Management Programme

# Basic Assessment Report

## Appendix G – Other Information

### Public Participation Process

- Background information of the proposed development
- Signboards
- Notification of Landowner
- Notification of Authorities
- Newspaper adverts
- Distribution of BID and BID
- Registered I & APs
- Notification of release of Draft BAR (To be included in Final BAR)