BASIC ASSESSMENT REPORT (SECTION D) AND APPENDICES (SECTION F)

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

File Reference Number:

17/2/3N-227

Project Title:

Construction of Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province

Prepared for

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29th April 2013

(Draft for Comment)

DOCUMENT CONTROL

Table 1: Document Control

COMPILED/REVISED BY	STATUS	REVISION	REVIEWED/ APPROVED BY	DISTRIBUTED ON	REASON
Shaun MacGregor	Draft	00	Registered I&APs	29th April 2013	30 and 40 day comment review period.

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ABBREVIATIONS AND DEFINITIONS

Table 2: List of terms for abbreviations used in this document.

Abbreviation	Term
BA	Basic Assessment
CA	Competent Authority
DEA	Department of Environmental Affairs (National)
DEDET	Department of Economic Development, Environment and Tourism (Mpumalanga)
DM	Department of Minerals
DWA	Department of Water Affairs
EA	Environmental Authorisation
EMPr	Environmental Management Programme
ELM	Emalahleni Local Municipality
ELU	Existing Lawful Use
GA	General Authorisation
I&APs	Interested and Affected Parties
LA	Listed Activity (EIA Regulations, 2010)
LN1	Listing Notice 1: GN R. 544, 18 June 2010
LN2	Listing Notice 2: GN R. 545, 18 June 2010
LN3	Listing Notice 3: GN R. 546, 18 June 2010
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
NDM	Nkangala District Municipality
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
SAHRA	South African Heritage Resources Agency
WUL	Water Use License

Table 3: Definitions of some terms used in this document.

Term	Source	Definition
Environmental Impact	ISO 14001: 2004	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from those elements of the proposed activities that can interact with the environment.
Maintenance	DEA (pers. comm. FransScheepers, Deputy Director, IEM Policy and Regulatory Support)	Maintenance for the purpose of the regulations refers to actions performed to keep a structure or system functioning or in service. It does not include an increase in the footprint or throughput capacity. It includes reconstruction, if on the same location, capacity and footprint. (e.g. replacing like for like).
	Oxford Dictionary	Keep something in good condition or working order by checking or repairing it regularly
Scope	ISO 14001:2004	Refers to the extent and boundaries of the EMPr including geographical location, a timeframe, organisational units and activities.

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SECTION D: BASIC ASSESSMENT REPORT

1. Description of the Affected Environment by the Proposed Activity

"a description of the environment that may be affected by the proposed activity and the manner in which the geographical, physical, biological, social, economic and cultural aspects of the environment may be affected by the proposed activity;"
Regulation 22 (2) (d)

Proposed activity

The entire project entails the construction of four new Sewer Collector Lines to the existing Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.. Manholes will be constructed at key points along the proposed collector lines.

Sewer Collector Line No. 1

	Latitude (S):		**Longitude (E):**	
• Starting point of the activity	25^{o}	50.966‘	29^{o}	07.579‘
• Middle point of the activity	25^{o}	50.952‘	29^{o}	07,637‘
• End point of the activity	25^{o}	50,938‘	29^{o}	07,703‘

A new 200mm (OD) sewer collector line, approximately 250m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
The end portion of this pipeline, where it ties into the existing outfall sewer (**Photo 1**), is located within 100m of the watercourse or NFEPA wetland. The 1:100yr flood line is not known.

Photo 1: An illegal waste dump located on the edge of the township where the end point of the new collector line will tie into the existing outfall sewer.

Sewer Collector Line No. 2

	Latitude (S):		**Longitude (E):**	
• Starting point of the activity	25^{o}	50.834‘	29^{o}	07.510‘
• Middle point of the activity	25^{o}	50.827‘	29^{o}	07,566‘
• End point of the activity (**Photo 2**)	25^{o}	50,817‘	29^{o}	07,643‘

A new 200mm (OD) sewer collector line, approximately 200m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
The pipeline is not located within 100m of the watercourse or NFEPA wetland. The 1:100yr flood line is not known.

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Photo 2: Visual distance from the edge of a terrace (foreground) to the edge of the reed bed/bank (background).

Sewer Collector Line No. 3

- Starting point of the activity
- Middle point of the activity
- End point of the activity (**Photo 3**)

Latitude (S):		**Longitude (E):**	
25°	50.110‘	29°	07.364‘
The vegetation was too thick to get a GPS reading			
25°	50,090‘	29°	07,398‘

A new 200mm (OD) sewer collector line, approximately 40m long, will be constructed from an existing manhole to an existing 800mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
The full length of the proposed pipeline is situated within a disturbed wetland system (pers. comm. Sampie Shabangu, DWA). The same area is not identified as a National Fresh Water Ecosystem Priority Area. Nor is it located within 100m of the identified watercourse or NFEPA wetland.

Photo 3: The end point of the new collector line ties into a manhole on the outfall sewer, which is located to the left of the gravel road.

Sewer Collector Line No. 4

- Starting point of the activity
- Middle point of the activity
- End point of the activity

Latitude (S):		**Longitude (E):**	
25°	50.275‘	29°	06.309‘
25°	50.251‘	29°	06,455‘
25°	50,229‘	29°	06,633‘

A new 355mm (OD) sewer collector line, approximately 550m long, will be constructed from Hlalanikahle extension 10 & 11 to an existing 800mm OD outfall sewer line. The design throughput is $99.2ls^{-1}$.

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The start point is located close to an earth canal, which is not considered to be a watercourse. The remaining alignment will be constructed on the urban side of a dirt road that demarcates the edge of the existing township. Mr Sampie Shabangu, of DWA, confirmed that the area north of the road was a disturbed wetland system, during an inspection of the site on 07th February 2013. The same area is not identified as a National Fresh Water Ecosystem Priority Area.

Photo 4: The disturbed wetland system north of (centre and right) the edge of the township (top left) and proposed Sewer Collector Line No. 4. Scattered wet patches occur in shallow depressions possibly resulting from historical disturbances. The pipeline will be constructed on the township-side of the gravel road (top left corner).

Geographical aspects

Emalahleni and Middleburg are the two main towns in the Nkangala District, both in terms of location and function (Nkangala District Municipality, Draft Integrated Development Plan 2011/12 – 2015/16).

Hlalanikahle is a township in Emalahleni Local Municipality which is situated on the Highveld of Mpumalanga. The municipality is advantaged by its location adjacent to the N4 and N12 roads, which link the area to Gauteng as well as the harbours of Richards Bay and Maputo. The Maputo Corridor is the cornerstone of potential development in Emalahleni (Mpumalanga Top Business Portfolio 2009/10).

The 16 847 households in Hlalanikahle Township account for 16% of the total households in Emalahleni Local Municipality. The township has a population 69 635 (Nkangala District Municipality – Construction of Hlalanikahle Sewer Network – Design Report – Project Number: 6235/13).

Physical aspects

The overall topography of the Nkangala District can be described as an undulating landscape, occasionally interrupted with resistant ridges and hills, and falls within the Inkomati and Olifants Water Management Areas (Nkangala District Municipality, Final Report - Spatial Development Framework 2011/16).

There are six broadly defined soil types present in the Nkangala District Municipality. These are:

Red Yellow Apedale, freely drained soils;
Plinthic Cantena: Upland Duplex and Margalitic soils rare which include Dystrophic and/or Mesotrophic as well as Eutrophic soil;
Prismacutanic and/or peducatanic horizons dominant;
Vertic, Melanic, red structured diagnostic soils;
Glenrosa and/or Mispah forms; and
Rock areas with little or no soil.

In general the soil and geological formations are fairly stable and do not pose significant development constrains to the region. The southern part of Emalahleni Local Municipality is underlain by more or less

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continuous coal development of the Karoo sequence. The Waterberg Group mainly underlies the remainder of the area. A very large number of currently dormant coal mines occur in the west of the municipal area (Nkangala District Municipality, Final Report - Spatial Development Framework 2011/16).

The Witbank Dam/Bankenveld Nature Reserve is the largest Municipal Dam in the southern Hemisphere, with a catchment area of approximately 3 540m^2. In contrast to the natural beauty offered by the nature reserves found within the Region, the mining towns, together with the numerous collieries which characterise the wider surroundings, present significant industrial tourism opportunities (Nkangala District Municipality, Final Report - Spatial Development Framework 2011/16).

Biological aspects

The field types occurring within Nkangala can be divided into three categories, namely Tropical Bush and Savannah types (Bushveld), pure grassveld types, and false grassveld types. Approximately 40% of the Nkangala district is covered with Bankveld, which is categorised as the only false grassveld type in the area. Bankveld covers the largest part of the Delmas, Emalahleni and Steve Tshwete Municipal areas, with intrusions of Veld or Turf Highveld in the south (Nkangala District Municipality, Final Report - Spatial Development Framework 2011/16).

Emalahleni Local Municipality does contain Eastern Temperate Freshwater Wetlands, which are also identified as vulnerable ecosystems (SANBI & DEAT 2009). These wetlands are located around water bodies with stagnant water (lakes, pans, periodically flooded vleis, edges of calmly flowing rivers) and embedded within the grassland biome (SANBI & DEAT 2009). The latter are located in flat landscapes or shallow depressions filled with (temporary) water bodies supporting zoned systems of aquatic and hygrophilous vegetation of temporarily flooded grasslands and ephemeral herblands (SANBI & DEAT 2009).

Hlalanikahle including the immediate environ is either in or nearby a threatened ecosystem, known as the Eastern Highveld Grassland, but it is listed as vulnerable (SANBI & DEAT 2009).

Social aspects

The significant increase of the population of Emalahleni may be due to, *inter alia*, the fact that the share of the economy of Emalahleni Local Municipality in the context of the District grew from about 45% in 2004 to 57% in 2007. As a result, the municipality has the highest backlog regarding the provision water and sanitation. Informal settlements are also on the increase due to the existing housing backlog in the District (Nkangala District Municipality, Draft Integrated Development Plan 2011/12 – 2015/16).

The sewer lines will traverse several sections of Hlalanikahle settlement and are located underground. Consequently, the sewer lines will be removed from the public and will not have any visual, aesthetic or similar impacts on society. All property, house or yard owners and servitude holders were consulted and permissions were sought during the BA process.

Economic aspects

South Africa's macroeconomic policy has had a succession of official labels over the years, from GEAR to AsgiSA, but the fundamentals remained essentially the same: maintaining macroeconomic stability, limiting inflation, reducing debt, and preserving a stable currency. As those goals were achieved, government moved to a more expansionist policy designed to address poverty and other social issues. The Accelerated and Shared Growth Initiative (AsgiSA) further recognised the need to eliminate identified constraints to investment in order to achieve growth and job creation (South Africa at a Glance, Mpumalanga Province, 15th Edition, 2009-2010, Mpumalanga Economic Growth Agency).

Emalahleni, which is the one of the main towns within the Nkangala District, is regarded as the energy mecca for the whole country. The relatively large economies of Steve Tshwete and Emalahleni sustain the economy of Nkangala to a great extent and are based on the steel industry with high reliance on the manufacturing sector. A strength of the district is the Maputo corridor, which brings increased potential for economic growth and tourism development. The proximity to Gauteng opens up opportunities to a larger market, which is of benefit to to the district's agricultural and manufacturing sector (Mpumalanga Top Business Portfolio 2009/10).

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The bulk of the population in Emalahleni is urbanised with only 11% of the population residing in the non-urban areas (Mpumalanga Top Business Portfolio 2009/10). The LM is predominantly an industrial zone, originally known for coal mining. The municipal headquarters are located in Emalahleni LM which is home to a number of large industrial concerns such as Highveld Steel and mining companies as well as energy generating organisations. Emalahleni LM is one of the major urban concentrations in the Nkangala District Municipality and within Mpumalanga as a whole. The N4 and N11 freeways create economic opportunities for the Nkangala District through trade opportunities associated with the Maputo and Richards Bay harbours as well as tourism opportunities associated with some of the main tourism centres in South Africa (Nkangala District Municipality, Draft Integrated Development Plan 2011/12 – 2015/16).

The vision of Emalahleni Local Municipality is “striving together to be an excellent centre for service delivery”. However, the municipality has the highest backlog regarding the provision water and sanitation because they have not kept up with significant increase in the population of Emalahleni associated with a growing economy. As a result,. Informal settlements are also on the increase due to the existing housing backlog in the District (Nkangala District Municipality, Draft Integrated Development Plan 2011/12 – 2015/16). The project therefore constitutes a meaningful contribution towards the achievement of a common national and local economic development goal, specifically social issues through service delivery.

Cultural aspects

There was no evidence to show that the areas traversed by the proposed alignment(s) were of cultural significance. There were no heritage resources, including known archaeological or palaeontological sites over 100 years old, and graves or structures older than 60 years. Three of the four Sewer Collector Lines will be constructed within the streets or gravel access roads of Hlalanikahle Township. Sewer Collector Line No. 3 will traverse only 40m of a disturbed wetland system, but not within potentially fossiliferous superficial deposits, and the bedrock shall not be disturbed due to the shallow excavations. Furthermore, the public participation process, including site meetings, did not reveal any oral histories and cultural landscapes/viewscapes associated with the site.

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2. Prescribed Environmental Management Standards, Practices, Policies, Guidelines or Legislation

"an identification of all legislation and guidelines that have been considered in the preparation of the basic assessment report;"
Regulation 22 (2) (e)

List of Legislation

On 18 June 2010 the Minister responsible for Environmental Affairs promulgated amended EIA Regulations in terms of Chapter 5 of NEMA. From the date of effect of these amended EIA Regulations, 2 August 2010, they replaced the previous EIA Regulations that were promulgated on 21 April 2006.

The following legislation, guidelines, departmental policies, environmental management instruments and/or other decision making instruments that have been developed or adopted by a competent authority in respect of activities associated with a development of this nature, were identified and considered in the preparation of this EMPr.

1. Conservation of Agricultural Resources Act (No 43 of 1983) and the regulations dealing with declared weeds and invader plants as amended from time to time;
2. DEA (2010), Public Participation 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs, Pretoria, South Africa;
3. DEA&DP (2010) Guideline on Alternatives, EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning (DEA&DP);
4. DEAT (2002) Specialist Studies, Information Series 4, Department of Environmental Affairs and Tourism (DEAT), Pretoria;
5. DWAF (2004) General Authorisation in GN No. 399 published in Government Gazette No. 26187 dated 26 March 2004;
6. DWA (2007), Guideline for Developments within a Floodline (Edition 1), Department of Water Affairs and Forestry, Pretoria, South Africa;
7. DWAF (2009) General Authorisation in GN No. 1199 published in Government Gazette No. 32805 dated 18th December, 2009;
8. Environment Conservation Act (No 73 of 1989), including Schedules 4 and 5 of the National Regulations regarding Noise Control made under Section 25 of the Environment Conservation Act, 1989 (Act 73 of 1989) in GN No. R 154 of Government Gazette No. 13717 dated 10 January 1992. (Note that this particular section of the Environment Conservation Act is not repealed by NEMA (107 of 1998)).Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), as amended;
9. Ferrar, A.A. & Lotter, M.C. 2007. Mpumalanga Biodiversity Conservation Plan Handbook. Mpumalanga Tourism & Parks Agency, Nelspruit.
10. Grant Adlam & Lalita Dhasiar-Ventura (2009/10), Mpumalanga Top Business Portfolio. Published by Superfecta Trading 106cc;
11. IDP (Final) 2012/13 – 2015/16 Nkangala District Municipality;
12. IDP (Final) 2012 – 2017 Emalahleni Local Municipality;
13. Minerals and Petroleum Resources Development Act, 2002 (No 28 of 2002);
14. National Environmental Management Act, 1998 (No 107 of 1998) including EIA Regulations, 2010 published in Government Notice No. R. 543, R. 544, R. 545, R. 546 and R. 547 in Government Gazette No. 33306 dated 18 June 2010;
15. National Environmental Management: Air Quality Act, 2003 (No 57 of 2003) including the list of activities which result in atmospheric emissions published in GN No. 248 of Government Gazette No. 33064 dated 31 March 2010;
16. National Environmental Management: Biodiversity Act, 2004 (No 10 of 2004);
17. National Environmental Management: Waste Act, 2009 (Act No. 59 of 2009) ("NEM:WA").
18. National Forest Act, 1998 (No 84 of 1998);
19. National Heritage Resources Act, 1999 (No 25 of 1999);
20. National Veld and Forest Fire Act, 1998 (No 101 of 1998);
21. National Water Act, 1998 (Act No. 36 of 1998), Sections 27, 28,29,30,31 and 39 (Sections dealing with General Authorisations and Water Use Licenses);
22. SANBI & DEAT 2009. Threatened Ecosystems in South Africa: Description and Maps. Draft for Comment. South African National Biodiversity Institute, Pretoria, South Africa;

23. Sanitation Technology Options prepared by the Department of Water Affairs and Forestry (DWAF), RSA; and
24. SDF (Final) 2011 – 2016 Nkangala District Municipality.

Environmental Legislation

There are two legal requirements that must be met before a person may construct within a watercourse, namely with regard to (1) entitlement to water use in terms of the National Water Act, 1998, and (2) environmental legislationin terms of the National Environmental Management Act, 1998.

National Water Act, 1998

Before physical activities may start within a watercourse, written authorization to use water must be obtained from the Regional Director of the relevant region. Entitlements to use water may be: a Schedule 1 use, a General Authorisation, a Water Use License and an Existing Lawful Use (ELU). In the case of existing infrastructure, an ELU (subject to verification) will normally be acknowledged but it is essential that confirmation be obtained in writing from the Regional Director.

Section 32(1) of the NWA reads, "an existing lawful water use means a water use- (a) which has taken place at any time during a period of two years immediately before the date of commencement of this Act, or…, and which- (i) was authorized by or under any law which was in force immediately before the date of commencement of this Act;"

The NWA authorizes Existing Lawful Water Users to continue using water as long as they were lawfully using the water during the two-year Qualifying Period according to any laws that were in place at that time. Unfortunately it is not known when the existing Hlalanikahle Sewer Network was constructed and whether it was lawful before the NWA came into force. Consequently, Mr Sampie Howard Shabangu of DWA requested the Applicant to submit an application for General Authorisation (GA).

There is a GA contained in the Schedule of Government Notice No. 1199, 18 December 2009 for section 21(c) and (i) water uses for impeding or diverting the flow and altering the bed, banks, course or characteristics of a watercourse, respectively. The GA permits the aforesaid water uses without the need for a Water Use License, but it is subject to the implementation of certain conditions. Furthermore, the GA only applies to certain persons and certain areas. It also excludes specific applications described in item 6 of the Notice.

A GA for all four new sewer collector lines will be submitted to the DWA on Thursday 25th April, 2013.

National Environmental Management Act, 1998

The provisions and regulations published in Government Notice No. R. 543, R. 544, R. 545, and R. 546 in Government Gazette No. 33306 of 18 June 2010, promulgated in terms of sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) regarding control over activities which may have a detrimental effect on the environment, must be complied with (**Table 4**).

Table 4: Potential listed activities in respect of the proposed project.

Activity and Notice No.	Listed Activity	Motivation including Detailed Project Description of the Activity
9, GNR 544, 2010	The **construction** of facilities or **infrastructure** exceeding 1000 metres in length for the bulk transportation of water, **sewage** or storm water – (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, excluding where: a. such facilities or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.	We assume this activity is not triggered because the new sewer collector lines range between 40m and 550m, the largest external diameter is 0.355m and the peak throughput does not exceed is 99.2ls^{-1}. Note: the cumulative distance of all 4 lines (200m+250m+550m+40m=1040m) will be greater than 1000m. However, the pipelines are within an urban area, and two of them (200m+250m) are further than 32m from a watercourse.
11, GNR	The **construction** of:	This activity will only be triggered if it is

544, 2010	(i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlets; (vii) marinas; (viii) jetties exceeding 50 square metres in size; (ix) slipways exceeding 50 square metres in size; (x) buildings exceeding 50 square metres in size; (xi) **infrastructure** or structures **covering 50 square metres** or more Where such construction occurs within a watercourse or **within 32 metres of a watercourse**, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	determined that the end points of Sewer Collector Lines 1 and 2, where they tie in to the existing outfall sewer, or the lengths of Lines 3 and 4, occur within 32m from the edge of a watercourse. **Please verify which Sewer Collector Lines trigger this activity, particularly within the context of their locations relative to the existing Hlalanikahle Sewer Network, the edge of the township and the nature of the watercourses.** "watercourse" means- (a) a river or spring; (b) a natural channel or depression in which water flows regularly or intermittently; (c) a wetland, lake or dam into which , or from which, water flows; and (d) any collection of water which the Minister may, by notice; the Gazette, declare to be a watercourse as defined in the National Water Act , 1998(act no. 36 of 1998) and a reference to a watercourse includes, where relevant, its bed and banks; "wetland" Means land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil. There is no definition for the edge of a watercourse, other than it includes the banks. <u>Collector Line 1:</u> The end point is approximately 60m from the edge of the reed bed/bank, but soils from the end point to the edge of the reed bed/bank were sandy and indicate a potential terrace or floodplain. The 1:100yr flood line is not known. Only the end portion of this pipeline, where it ties into the existing outfall sewer, is located within 100m of the watercourse or NFEPA wetland. <u>Collector Line 2:</u>The end point was approximately 45m to the terrace or floodplain, and approximately 100m from the edge of the reed bed/bank. The 1:100yr flood line is not known. The pipeline is not located within 100m of the watercourse or NFEPA wetland. <u>Collector Line 3:</u> The end point was approximately 100m from the edge of the reed bed/bank, but the full length of the proposed pipeline is situated within a disturbed wetland system (pers. comm. Sampie Shabangu, DWA). The same area is not identified as a National Fresh Water Ecosystem Priority Area (Appendix B). Nor is it located within 100m of the identified watercourse or NFEPA wetland.

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		Collector Line 4: The start point is located close to an earth canal, which is not considered to be a watercourse. The remaining alignment will be constructed on the urban side of a dirt road that demarcates the edge of the existing township. Mr Sampie Shabangu, of DWA, confirmed that the area north of the road was a disturbed wetland system, during an inspection of the site on 07th February 2013. The same area is not identified as a National Fresh Water Ecosystem Priority Area.
18, GNR 544, 2010, as corrected	The infilling or depositing of any material of **more than 5 cubic metres** into, or the dredging, **excavation**, removal or moving of **soil**, sand, shells, shell grit, pebbles or rock of **more than 5 cubic metres**from: (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 estuary, whichever distance is greater but excluding where such infilling, depositing, dredging, excavation, removal or moving; a. is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or b. occurs behind the development setback line.	**QUERY 1** This activity will be triggered if > 5m3 of soil are excavated during the construction of Sewer Collector Line No. 3 in a disturbed wetland system and if the other Sewer Lines are determined to be within the edge of a watercourse.
26, GNR 544, 2010	Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).	**QUERY 2** Section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (NEMBA), provides that the Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process. **Please confirm whether any processes or activities have been identified in terms of section 53(1) of NEMBA as listed ecosystems or threatening process.** Activity 26 of LN1 cannot be triggered until such time as these processes or activities have been identified. We assume this activity is not triggered.
37, GNR 544, 2010	The **expansion** of facilities or **infrastructure for the bulk transportation of** water, **sewage** or storm water where: (a) the facility or infrastructure is expanded by more than 1000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more – Excluding where such expansion: (i) relates to transportation of water, sewage or storm water within a road reserve; or (ii) where such expansion will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.	**QUERY 3** A new pipeline adjacent an existing pipeline does not constitute expansion. However, the new sewer collector lines will be connected to the existing outfall sewer. **Kindly clarify whether the Department interprets the proposed activities as 'construction' or 'expansion.'** "expansion" Means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased; We assume this activity is not triggered.

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40, GNR 544, 2010	The **expansion** of (i) jetties by more than 50 square metres; (ii) slipways by more than 50 square metres; or (iii) buildings by more than 50 square metres (iv) **infrastructure** by more than 50 square metres within a watercourse or **within 32 metres of awatercourse**, measured from the edge of a watercourse, but excluding where such expansion will occur behind the development setback line.	A new pipeline adjacent an existing pipeline does not constitute expansion. However, the new sewer collector lines will be connected to the existing outfall sewer. Kindly clarify whether the Department interprets the proposed activities as 'construction' or 'expansion.' We assume this activity is not triggered.
12, GNR 546, 2010	The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation. (a) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (b) Within critical biodiversity areas identified in bioregional plans; etc.	Sewer Collector Line No. 3 will clear indigenous vegetation. Lines 1, 2 and 4 are located within the township. Collector Line 3 is approximately 40m long. Assuming a working servitude of 3m, vegetation clearance should not exceed 120m^2. The sites are not located within a critically endangered or endangered ecosystem. We assume this activity is not triggered.
16, GNR 546, 2010	The **construction** of: (i) jetties exceeding 10 square metres in size; (ii) slipways exceeding 10 square metres in size; (iii) buildings with a footprint exceeding 10 square metres in size, or (iv) **infrastructure** covering **10 square metres or more** where such construction occurs **within a watercourse** or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The relevance of this activity is dependent on whether the proposed project constitutes 'construction' or 'expansion,' whether the 4 Collector Lines are determined to be within 32m from the edge of a watercourse and whether Hlalanikahle including immediate environ is located within an identified geographical area.
24, GNR 546, 2010	The **expansion** of: (a) jetties where the jetty will be expanded by 10 square metres in size or more; (b) slipways where the slipway will be expanded by 10 square metres or more; (c) buildings where the buildings will be expanded by 10 square metres or more in size, or (d) **infrastructure** where the infrastructure will be expanded by **10 square metres or more** where such construction occurs within a **watercourse** or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.	The relevance of this activity is dependent on whether the proposed project constitutes 'construction' or 'expansion,' whether the 4 Collector Lines are determined to be within 32m from the edge of a watercourse and whether Hlalanikahle including immediate environ is located within an identified geographical area. We assume this activity is not triggered.

Only Sewer Collector Line No. 3 will be located within a watercourse. More than 5m³ of material will be excavated during construction. Therefore, LA18 of LN1 will be triggered and will require a BA for EA.

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Listed Activity 18 of LN1 reads:
The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from

(v) a watercourse;
(vi) the sea
(vii) the seashore
(viii) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea estuary, whichever distance is greater -

but excluding where such infilling, depositing, dredging, excavation, removal or moving;

(a) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or
(b) occurs behind the development setback line.

The exclusion clause allows the applicant to implement the necessary maintenance without conducting a BA and whilst remaining compliant in terms of the presiding environmental legislation, namely NEMA. However, the exclusion is subject to the activity being for maintenance purposes and the approval of an EMPr by the competent authority.

The proposed project entails the construction of four new sewer collector lines or the expansion of the existing sewer network. The physical activities do not fall within the DEA's definition of 'maintenance.'

The following interpretations were provided via email on 08th, 20thand 21stNovember, 2012 by Franz Scheepers, DEA, Deputy Director: IEM Policy and Regulatory Support, in response to a query (reference IQ/12/0452) in respect of the proposed reconstruction of a culvert.

- Construction does not per se trigger this activity. The trigger for this activity is either - infilling or depositing of any material of more than 5 cubic metres into...; or - the dredging, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from...
- Based on the information provided, the activities listed in the table below would not, per se, trigger activity 18 of GNR 544. This activity may however by implication be triggered if- soil, sand, shells, shell grit, pebbles or rock of 5 cubic metres or more are removed with any structures; or- infilling or depositing of material takes place with / as result of the construction.
- Removal/replacement of concrete and/or backfill *(for wing wall and/or floor slab)* will neither constitute construction nor expansion, provided that this is like for like with same capacity and footprint.
- Gravel shoulder of existing road converted to surfaced shoulder would not constitute construction, in the event where the shoulder (infrastructure) already exists.
- Removal/replacement of material/soil for the foundation under the culvert will trigger activity 18 of GNR 544 if the relevant $5m^3$ threshold is met.
- Activity 18 of GNR 544 lists *"the infilling or depositing of any material of more than 5 cubic metres ..."*
    - The infilling and/or depositing of any material of $5m^3$ or more will trigger this activity... the reconstruction of i.e. a concrete slab, bridge, channel etc. will not meet the definitions of infilling or depositing... so, the "wet concrete" use to reconstruct the infrastructure *(as long as such forms part of like for like on same capacity & footrpint)* will not be deemed depositing or infilling. For the purpose of activity 18 of GNR 544 concrete wing walls, concrete culverts, the concrete floor slab and bitumen soaked aggregate are all deemed to be infrastructure and the replacement of such will not be deemed infilling and/or depositing for the purposes of activity 18 of GN R 544.
- Activity 18 of GNR 544 continues *"... or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock, backfill that form the road embankment of more than 5 cubic metres from..."*
    - For this part of the activity only certain material is listed soil, sand, shells, shell grit, pebbles or rock.
- The increase in height of the culvert will, although such is deemed an expansion, not trigger any of the expansion listed activities. For activities 39 and 40 of GNR 544 to be triggered the expansion

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must constitute an increased development footprint. Based on the information provided this would not be the case.

- Further to the scenario sketched and the maintenance question:
  - **Maintenance for the purpose of the regulations refers to actions performed to keep a structure or system functioning or in service. It does not include an increase in the footprint or throughput capacity. It includes reconstruction, if on the same location, capacity and footprint e.g. replacing like for like.**
  - Such activities (as per 18) for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority are excluded. In this regard you will have to consult the provincial environmental Department:
    - The Competent Authority needs to agree that what the proponent intends to do indeed constitutes maintenance (if no such agreement the exclusion cannot apply and activity 18 of GNR 544 must be applied for); AND
    - The Competent Authority MUST in writing agree to the Management Plan- in such an event the agreed to maintenance plan would constitute an exclusion to activity 18 of GNR 544 above.

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3. Public Participation Process

"details of the public participation process conducted in terms of regulation 21(2)(a) in connection with the application, including-

- *(i) The steps that were taken to notify potentially interested and affected parties of the proposed application;*
- *(ii) Proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;*
- *(iii) a list of all persons, organisations and organs of state that were registered in terms of regulation 55 as interested and affected parties in relation to the application; and;*
- *(iv) a summary of issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues;*

Regulation 22 (2) (f)

The Public Participation Process (PPP) was undertaken according to Regulation 54 of the EIA Regulations, 2010, and took into consideration the Public Participation 2010 Guideline Document (DEA, 2010).

The level of public participation was determined by taking into account the scale of the anticipated impacts of the proposed project, the sensitivity of the affected environment and the degree of controversy of the project, and the characteristics of the potentially affected parties. Based on the findings of the aforementioned consideration (**Appendix E-A:** Level of Public Participation), there was no reason to elaborate on the minimum requirements of the public participation process outlined in the EIA Regulations, 2010 or use reasonable alternative methods for people desiring of but unable to participate in the process due to illiteracy, disability or any other disadvantage. Never the less, the decision was taken to hold a Public site meeting. A Public (**Appendix E-L:** Meeting register) site meeting was held at 10h00, on the 22nd of March 2013 at the Hlalanikahle Police Station wherein the proposed application was discussed (**Appendix E-K:** Meeting minutes).

Potentially interested and affected parties were notified of the site meeting and proposed application by –

a. fixing a notice board 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;

Four notice boards (**Appendix E-B:** Site notice text) advertising the applications were fixed at the start points where the Sewer Collector Lines traverse Hlalanikahle on the 05th of March 2013 (**Appendix E-C:** Proof of displayed notice boards). There was no reasonable alternative site (Section D (5)).

b. Hand delivering (**Appendix E-E (2):** Distribution by hand) or emailing (**Appendix E-E (1):** Distribution via email) Background Information Documents (BID) (**Appendix E-E (1):** Background Information Document (BID) text) to –

The owner or person in control of that land if the applicant is not the owner or person in control of the land: The owner or person in control of the land is Emalahleni Local Municipality.
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: There was no reasonable alternative site (Section D (5)).
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: Surrounding neighbors within proximity to the proposed pipelines: Paulos Mashiloane, 072 071 2298 Fatima Masinga, 073 485 7095 Ivy Mthimunye, 079 678 0733 Thoko Nkambule, 074 372 2323 Jabu Nkambule, 078 759 1696 Nurse Mathenjwa, 076 500 0379 Victor Mavuso, 079 629 5836 Altinah Kenny, 082 844 3246 Damais 078 784 6551 Thembelihle Gininda, 073 579 1810 Joanah Mtsweni, 078 136 8371

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TM Mokoena, 079 015 5867 Ronny Maboa, 072 441 9365 Sizakele Ndlela, 072 372 0395 Irene Khoza, 072 591 5328 Ellen Sibali, 078 634 2117 Mavis Ncheba, 072 992 5628 Maria Mabena, 076 808 8852 Nera Mazivhe, 079 286 7572 Elsie Nkosi, 073 466 3215 Miss Mafokane, 076 070 1807 Martha Mabuza, 072 361 1341 Frekkie Dikotope, 083 498 8720 Mxolisi Malinga, 073 771 7072 Paulos Mahlangu, 071 413 4006 Nora Mashegoane, 083 770 9788 Nurse Molatjie, 072 880 8795 Nthabiseng Seroka, 072 480 1074 Rose Mahlangu, 072 132 6033 Hilda Mazibuko, 083 589 0420 MJB Buthelezi, 072 219 5675 Nelly Nyakeni, 078 840 8002 Nkosinathi Nkosi, 076 298 3981 Tshepo Maseko, 082 071 5974 Mumsy Magane, 079 798 6671 Martha Ntuli, 072 748 3405 Linah Zwane, 073 939 8970 Mrs Mthombeni, 083 465 8929 Miss Malapane, 072 908 6484 Shirley Dzimba, 083 654 9740 Thandi Msiza, 072 990 8369 Siphiwe Simelane, 076 512 9189 Delisile Nkabinde, 078 044 9295 Busi Msibi, 079 048 9044 Abel Silala, 076 270 3150 Zodwa Nyandeni, 073 279 2733 Thuli Balata, 076 895 6579 Tshepo Mahlangu, 071 986 1770 Johan Mbethe, 079 456 2861 Phindile Mtshali, 079 680 0895 Phineas Nchabelele, 079 460 9539 Dumisane Mavundla, 072 303 1685 Matthew Mhlanga, 072 116 9430 David Lukhele, 072 757 9555 Margarette Mathibela, 073 829 4088 Lucas Mashele, 072 621 3792 AZ Mgwenya, 073 505 6177 Smangele Sibeko, 078 954 4375 Phindile Masango, 076 388 3440 Maria Sibanyoni, 078 649 0444 Betty Bolton, 079 346 6049 Zodwa Mahlangu, 076 523 3538 Armando Matavela, 079 936 0112 Johan Matsinye, 072 820 0912 Mpumi Shabangu, 076 694 1239 Dennis Mohlale, 076 263 7300 Mduduzi , 076 992 1533 Fatima Sithole, 078 814 0877 Ntombi Mathebula, 082 404 1115 Joseph Sindane, 079 929 3577 Margarette Radebe, 078 055 1582 Sifiso Zunguza, 079 710 8310
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: Meisie Ndlovu, 082 406 7682. Jappie Msibi, jmsibi25@gmail.com, 073 789 1521. Lydia Magabutse, lydiamahlangu4@gmail.com, 073 399 4823. Thami Khumalo, 082 795 0540.

The municipality which has jurisdiction in the area: **Nkangala District Municipality** AG Zimbwa, gambulc@nkangaladm.gov.za, 013 249 2004. EK Tshabalala, tshabalalaek@nkangaladm.gov.za, 013 249 2004. Mpho Nembilwi, nembilwim@nkangaladm.gov.za, 013 249 2132 Boetie Mathe, matheb@nkangaladm.gov.za, 013 249 2042 Gift Mathalise, mathaliseg@nkangaladm.gov.za, 013 249 2044 FR Ntekele, ntekelefr@nkangaladm.gov.za. Lawrence Makofane, makofanelt@nkangaldm.gov.za, 013 249 2039 Mokgadi Mokgolomotho, mokgolomothome@nkangeladm.gov.za, 013 249 2025 **Emalahleni Local Municipality** G Mthimunye, mbethefak@emalahleni.gov.za, 013 690 6208 Ms Biyela, mkhabeladp@emalahleni.gov.za, 013 690 6404 EJ Nkabinde, nkabindeej@emalahleni.gov.za, 013 690 6350 Phumzile Madonsela, madonselap@emalahkeni.gov.za, 013 690 6350
Any organ of state having jurisdiction in respect of any aspect of the activity: **MDEDET** Dineo Tswai, dtswai@wit.mpu.gov.za, 076 644 1707 Okwethu-kuhle Fakude, oqmatenjwa@yahoo.com, 013 690 2595 **DWA** Sampie Shabangu, shabangus2@dwa.gov.za, 013 759 7636 Prudence Dzambukeri, dzambukerip@dwa.gov.za, 013 759 7316 **DAFF** Zinzile Mtotywa, zinzilem@nda.agric.za, 0013 759 7388
Any other party as required by the competent authority/EAP: **South of Kruger Mine Forum** Ronelle Putter, ronelle.putter@lantic.net, 013 790 0591 **SAHRA** Phillip Hine, phine@sahra.org.za, 021-462 4502 Benjamin Moduka, bmoduka@mpg.gov.za, 013-766 5196 Jenna Lavin, jlavin@sahra.org.za, 021-462 4502 **Wetland Forum: REPRESENTATIVES OF NFEPA** Jeanne Nel-Principal Researcher (CSIR), jnel@csir.co.za, 021 888 2484 Mike Silberbauer-GIS layers of NFEPA (DWA), silberbauerM@dwa.gov.za **IRRIGATION BOARD/WUA** Hendrik Rossouw (Lebalelo WUA), ossie@cluesnet.co.za Nic Knoetze, nicknoetze@hotmail.co.za Monya Erasmus (Secretary), saafwua@hotmail.co.za
Servitude Holders: **ESKOM** Siebert Labuschagne (Distribution), siebert.labuschagne@eskom.co.za, 0824453436 Vuyo Dingiswayo (Witbank Office), dingisv@eskom.co.za, 0136933263 Angelina Shalang, ShalanAR@eskom.co.za Tshifhiwa Nekhavhambe, NekhahTT@eskom.co.za Marriam Ngwezi, NgweziMG@eskom.co.za Palesa Kuaho, KuahoP@eskom.co.za Milton Moloko, MolokoMM@eskom.co.za Betty Ngobeni, NgobenBT@eskom.co.za Tebogo Chauke, ChaukeTA@eskom.co.za Koos vd Merwe (Mega Watt - Transmission), jjvdm@eskom.co.za, 0828057605 Tersia Walton, waltont@eskom.co.za, 0829213857 Archie Mogokonyane, mogokoa@eskom.co.za Annelien Pretorius, pretoANN@eskom.co.za Lungile Motsisi, motsisL@eskom.co.za, 083 509 9165

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
   iii. one provincial newspaper or national newspaper if the activity has or may have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it is or will be undertaken

An advertisement (**Appendix E-F:** Advertisement text) was placed in a local newspaper, the Witbank News, on the 08th of March, 2013 (**Appendix E-G:** Proof of placed advertisement). No official Gazette existed at the time of the application.

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The proposed activity shall not have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it will be undertaken.

d. 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 illiteracy, disability or any other disadvantage.

Alternative methods were not required given the scale of the anticipated impacts and that the upgrade is needed in this specific area of Hlalanikahle.

In terms of regulation 55(1), all organs of state which have jurisdiction in respect of the proposed activity and all persons who submitted written comments, attended the site meeting or requested, in writing, to be registered were placed on the register (**Appendix E-H:** List of Registered Interested and Affected Parties).

A summary of the issues raised (**Appendix E-I:** Comment and Response Sheet) -

- Should the project go ahead, will the people need to demolish their houses and move to other places? If so, who will be liable for the costs? The municipality will be liable for costs of any damage to a resident's property, including *inter alia*, fences, but the pipeline will traverse no houses/yards, hence no one will be required or asked to move.
- The project triggers Section 38 (8) of the NHRA (Act 25 of 1999), but it is unlikely that any significant impacts on heritage resources will result from the proposed development as the area has been previously disturbed. All formal and informal cemeteries and burials must be left *in situ* and not disturbed. If it is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999).
- Pipes traversing the yards without the owner/occupant's concern. The contractor will provide residents with at least 2 days forewarning prior to excavating immediately adjacent, on or inside their demarcated boundaries.
- Stockpiles and excavations left unattended for longer periods of time than anticipated, pose a threat to children's lives and obstruct the road to school and access to their houses. Open trenches will not occur in front of any access from 15h00 to 09h00 or on a Saturday, Sunday or public holiday, unless a temporary but safe access is provided over the trench. Material stockpiles will not obstruct any access or through fare in respect of vehicles and pedestrians. The excavations/trenches will not be open for more than 24hrs.Danger tape or netting will be erected around open trenches.
- Proposed sewer line route traversing on the same route as the electricity lines. The Contractor will contact Eskom in the event of discovering any illegal connections and request Eskom to make the area safe prior to commencing work in the affected area.
- Infrastructure will be too close to Eskom's proposed lines. The Engineer shall apply, on behalf of ELM, for a wayleave from Eskom before commencing construction of Sewer Collector Line No. 4 through the relevant servitude.

4. Need and Desirability

"a description of the need and desirability of the proposed activity;"
Regulation 22 (2) (g)

Legislative Background and Strategic Context

The National Environmental Management Principles of NEMA, 1998, which guide the interpretation, administration and implementation of NEMA, 1998 (and the EIA Regulations, 2010) specifically *inter alia* require that environmental management must place people and their needs at the forefront of its concern (Section 2(2)). The latter refers to the broader societal/community needs and interests, and is put into effect through the EIA Regulations, 2010, which require environmental impact assessments to specifically consider 'need and desirability' in order to ensure that the 'best practicable environmental option' is pursued and that development more equitably serves broader societal needs now and in the future. Furthermore, it ensures that the proposed actions of individuals are measured against the long-term public interest.

What is needed and desired for a specific area must be strategically and democratically determined (DEA&DP (2010) Guideline on Need and Desirability). The strategic context for informing need and desirability is best addressed and determined during the formulation of the sustainable development vision, goals and objectives of Integrated Development Plans ('IDPs') and Spatial Development Frameworks ('SDFs') during which collaborative and participative processes play an integral part, and are given effect to, in the democratic processes at local government level (DEA&DP (2010) Guideline on Need and Desirability). The need and desirability must therefore be measured against the contents of the credible IDP, SDF and EMF for the area, and the sustainable development vision, goals and objectives formulated in, and the desired spatial form and pattern of land use reflected in, the area's IDP and SDF (DEA&DP (2010) Guideline on Need and Desirability). Integrated Development Planning (and the SDF process) effectively maps the desired route and destination, whilst the project-level EIA decision-making finds the alternative that will achieve the desired goal (DEA&DP (2010) Guideline on Need and Desirability). However, inadequate planning or the absence of a credible IDP and SDF means that the EIA has to address the broader need and desirability considerations. Consequently, 'need and desirability' is determined by considering the broader community's needs and interests as reflected in a credible IDP, SDF and EMF for the area, and as determined in the EIA decision-making process.

Furthermore, the Constitution calls for *justifiable* economic development. The specific needs of the broader community must therefore be considered together with the opportunity costs and distributional consequences in order to determine whether or not the development is 'justified'.

The general meaning of need and desirability refers to time and place, respectively, i.e. is this the right time and is it the right place for locating the proposed activity. The need and desirability of this application was addressed separately and in detail by answering *inter alia* the following questions:

NEED ('timing')
Question 1:
Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved Spatial Development Framework (SDF) agreed to by the relevant environmental authority? (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP).

- The following Planning Documents were used to assess the Need and Desirability of the construction of four new sewer collector lines at Hlalanikahle:
  1. IDP (Final) 2012/13 – 2015/16 Nkangala District Municipality.
  2. SDF (Final) 2011 – 2016 Nkangala District Municipality

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3. IDP (Final) 2012 – 2017 Emalahleni Local Municipality

- Yes. The land use activity is considered within the timeframe intended by the SDF and IDP. The SPF is applicable over a five year period from 2011-2016. The IDP is applicable for 2012-2013.
- The project in question, i.e. the **Upgrading of sewer network at Hlalanikahle,** is specifically mentioned in the table of priority projects for 2012/2013 in the Nkangala Municipality's IDP (Priority issue 12: Water and Sanitation, p 257).

Question 2:
Should development, or if applicable, expansion of the town/area concerned in terms of this land use (associated with the activity being applied for) occur here at this point in time?

- Yes. Infrastructure development and service delivery is identified as one of the key focus areas (KFA) in the Nkangala Municipality's IDP (p. 50). The KFA is targeted at meeting the priority needs of communities, addressing poverty and promoting infrastructure development and maintenance. Since the existing sewer network (infrastructure) is failing to cope with the current sewerage volumes, it is definitely within the needs of the community that the development occurs at this point in time.
- In their IDP, the Nkangala District Municipality also explain their **Disaster Management Plan (DMP)**, which was compiled in terms of the Disaster Management Act (2002) and was approved by Council (p. 136). In the DMP, several hazards are identified for each local municipality, among them sewerage/drainage failure at Emalahleni Local Municipality.
- The IDP also mentions specifically the importance of rural development (p. 83) and rural infrastructure development (p84).

Explanation: Question 1 and 2 seeks to find clarity as to whether the proposed land use is catered for in the current planning framework of the SDF and is intended for at that specific point in time. In this context the term land use should not only be broadly defined as agriculture, residential or industrial use, etcetera., but where relevant, it must be further qualified, for example, stating specifically whether a housing development is for social or high income purposes, or whether the industrial use is for service industries, or heavy industry, or whether the development is a high-rise as opposed to low-rise development, etcetera. Furthermore, if the land use is to occur in the proximity of an urban area, clarity must also be provided regarding its location in relation to the urban area.

Question 3:
Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate).

Yes. The project in question comprises the adding of four new sewer collector lines to the existing Hlalanikahle Sewer Network. The existing network is failing to cope with the current volume of sewerage and as a result, manholes regularly overflow, spilling raw human sewerage into the streets. Needless to say, this is a health and safety concern to the community and is thus a societal priority. The community need a sewerage network that performs effectively without compromising the health or safety of residents.

Explanation: Question 3 relates to the type of development and land use and not just its associated benefits or costs (i.e. the specific needs of the community at that specific time, e.g. small business rather than shopping centers, low-cost housing rather than luxury housing, etcetera, must be considered).

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Question 4:
Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?

The Hlalanikahle Sewer Network is not coping with the existing load and raw sewerage occasionally overflows from the manholes. Consequently the current capacity is not adequate. The problem can be alleviated by strategically constructing four new sewer collector lines within the existing network.

Question 5:
Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?

Yes, the new sewer collector lines will effectively increase the capacity of the existing infrastructure, specifically the Hlalanikahle Sewer Network. The IDP for Emalahleni Local Municipality lists "working to improve levels of service delivery for water and sanitation services" as an objective of their Infrastructure and Basic Services Delivery (p. 13). The IDP for Nkangala District Municipality lists the upgrading of Hlalanikahle Sewer Network as a priority issue and a budget for the project has been provided for 2013/14. The development is thus provided for in the infrastructure planning of the municipality.

Explanation: Question 4 and 5: According to the NEMA EIA Regulations an EIA must contain a description and assessment of the significance of any environmental impacts, including cumulative impacts, that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the activity. An associated activity/component essential for the undertaking of a proposed development (i.e. any associated component of the development, which cannot be separated from the development itself; e.g. residential development that cannot exist without the essential municipal infrastructure to serve it in terms of water and electricity provision, waste removal, treatment of sewage and management of stormwater) must be considered together with the proposed development, before the environmental authority decides on the development application. The environmental authority must (be able to) apply its mind to all the impacts (of the development and all its associated activities/components) prior to decision-making. Deferring decision-making on associated components to a future date constitutes conditional and piecemeal (incremental) decision-making, which result in the environmental authority not applying its mind to all the impacts and the pre-empting of decisions on the associated components-resulting in unsustainable development and legally impermissible administrative action.

Question 6:
Is this project part of a national programme to address an issue of national concern or importance?

After a limited search, we could not verify whether the upgrading of existing sewer networks forms part of a national programme. However, the IDP for Nkangala District Municipality does provide a table of their development objectives and strategies (p. 193) in which "strategic resource management and use" in terms of water and sanitation is listed as a **National Strategic Priority**. In relation to this, the developmental objectives of Nkangala Municipality are to ensure provisioning of adequate sanitation to all within the region by 2015, and to facilitate an efficient, competitive and responsive economic infrastructure network across the District (p. 194).

Explanation: Question 6: While the legislative frameworks require that national, provincial and municipal plans should be aligned, it is acknowledged that there might be certain strategically important developments (e.g. the construction of a nuclear power station) that are part of strategic programmes that are not always catered for in current planning framework of the SDFs. In these instances the

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strategic need and desirability considerations must be measured against the needs and desires of the area in question when determining the need and desirability of the development under consideration.

DESIRABILITY ('placing')
Question 7:
Is the development the best practicable environmental option for this land/site?

Yes it is the best practicable environmental option because four sewer collector lines form part of an existing network within and on the boundary of Hlalanikahle township. Three of the four sewer collector lines will be within or alongside gravel roads within the township. Sewer Collector Line No. 3 is located in an already disturbed wetland system, is only 40m long and is constructed between two existing manholes. Consequently, no undisturbed natural environments will be impacted. Furthermore the result will not cost, but benefit society by alleviating the existing pressures on the network, which results in raw sewerage overflowing into the streets and environment.

Explanation: Question 7: According to NEMA the "best practicable environmental option" means the option that provides the most benefit and causes the least damage to the environment as a whole, at a cost acceptable to society, in the long term as well as in the short term. In determining the best practicable environmental option, adequate consideration must also be given to opportunity costs.

Question 8:
Would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF as agreed to by the relevant authorities.

No. The delivery and improvement of sanitation services is listed as a Municipal objective in the Emalahleni Local Municipality IDP. It states that there are constant pipe bursts and complaints on improper management of sewerage systems in Hlalanikahle, and other settlements (p. 13). The project is specifically listed as a priority issue in the Nkangala District Municipality IDP (p. 138) and the SDF lists "rehabilitation of existing infrastructure" and "**improving and developing sanitation infrastructure**" as part of their Comprehensive Rural Development Programme (p. 22). Furthermore, the SDF states on page 104 that "the Nkangala District and Local Municipalities should thus continue to endeavor to **expand their formal… sanitation networks…**" The improvement of sanitation systems is thus a municipal priority at local and district level and approval of this application would therefor not compromise the integrity of the municipalities in question.

Question 9
Would the approval of this application compromise the integrity of the existing environmental management priorities for the area (e.g. as defined in EMFS), and if so, can it be justified in terms of sustainability considerations?

Neither the Nkangala District Municipality or Emalahleni Local Municipality currently have an EMF in place. In spite of no EMFs, upgrading the sewer network cannot logically compromise environmental management priorities because it will improve the health and safety of the residents and prevent harm to the environment, including pollution of the watercourse(s) with raw sewerage. Four sewer collector lines form part of an existing network within and on the boundary of Hlalanikahle township. Three of the four sewer collector lines will be within or alongside gravel roads within the township. Sewer Collector Line No. 3 is located in an already disturbed wetland system, is only 40m long and is constructed between two existing manholes.

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Explanation: Question 8 and 9: If the development is to occur in the proximity of an urban area, clarity must also provided whether or not it will be situated within or outside of the urban area, with the impacts associated with its location in relation to the urban area to be specifically considered and reported on.

Question 10:
Do location factors favour this land use (associated with the activity applied for) at this place? (this relates to the contextualisation of the proposed land use on this site within its broader context).

Yes, the locations of the four new sewer collector lines have been strategically calculated by the Engineer to address existing problems (overflow from manholes) within a sewerage network that forms part of an existing township.

Question 11:
How will the activity or the land use associated with the activity applied for, impact on sensitive natural and cultural areas (built and rural/natural environment)?

The proposed activity will, for the most part, not impact on sensitive natural areas, but will impact on the residents of Hlalanikahle Township.

Four new sewer collector lines will form part of an existing network within and on the boundary of Hlalanikahle township. Three of the four sewer collector lines will be within or alongside gravel roads within the township. Sewer Collector Line No. 3 is located in an already disturbed wetland system, is only 40m long and is constructed between two existing manholes.

Collector Line 1: Only the end portion of this pipeline, where it ties into the existing outfall sewer, is located within 100m of the watercourse or NFEPA wetland (**Appendix D-A:** Site Sensitivity Plan). The 1:100yr flood line is not known.

Collector Line 2: The pipeline is not located within 100m of the watercourse or NFEPA wetland (**Appendix D-A:** Site Sensitivity Plan). The 1:100yr flood line is not known.

Collector Line 3: The full length of the proposed pipeline is situated within a disturbed wetland system (pers. comm. Sampie Shabangu, DWA). The same area is not identified as a National Fresh Water Ecosystem Priority Area (**Appendix D-A:** Site Sensitivity Plan). Nor is it located within 100m of the identified watercourse or NFEPA wetland (**Appendix D-A:** Site Sensitivity Plan).

Collector Line 4: The start point is located close to an earth canal, which is not considered to be a watercourse. The remaining alignment will be constructed on the urban side of a dirt road that demarcates the edge of the existing township. Mr Sampie Shabangu, of DWA, confirmed that the area north of the road was a disturbed wetland system, during an inspection of the site on 07th February 2013. The same area is not identified as a National Fresh Water Ecosystem Priority Area (**Appendix D-A:** Site Sensitivity Plan).

Question 12:
How will the development impact on people's health and wellbeing (e.g. in terms of noise, odours, visual character and sense of place, etc)?

Potentially negative impacts will occur during the construction, such as noise, access and other construction related impacts, but the operation of the four new sewer collector lines will drastically improve the health and well being of the affected residents because it will alleviate the occasional incidents of raw sewerage overflowing from manholes.

Question 13:
Will the proposed activity or the land use associated with the activity applied for, result in unacceptable opportunity costs?

No. Since there will be no change in the current land use or since the activity (sewer network) is already

in existence, an assessment of the opportunity costs does not apply. The proposed activity is upgrading an existing sewer network to prevent pollution from overflowing manholes. Effectively, therefore, the opportunity cost for fixing the sewer network would be not to effect expansion and retain the current hazards to health and environment.

Explanation: Question 13: Opportunity costs can be defined as the net benefit that would have been yielded by the next best alternative (for example, if farming is the next best alternative for a piece of land, then the forgone benefit of losing the farming option will be the opportunity cost of any other land use, or if not proceeding with the activity, then the forgone benefits of the proposed activity is the opportunity cost of not proceeding). Opportunity costs also relate to the use of limited resources, for example water. If a limited volume of water is available in an area the most desirable use of the water considering the needs in the area must be determined in order to consider the opportunity costs associated with the different uses of the water. The concept of opportunity costs is applicable to project alternatives as well as policy selection. It is vital information if decision makers are to understand the implications associated with specific development proposals. A key part of considering opportunity costs is commonly to comparatively consider and assess the different alternatives in terms of the benefits and/or disadvantages associated with each alternative. Opportunity cost is a concept that often need not involve monetary values, though where these values can be given, they allow for a more detailed comparison than would otherwise be possible.

Question 14:
Will the proposed land use result in unacceptable cumulative impacts?

No. The intended purpose of the proposed project is to prevent existing harmful (cumulative) impacts to residents and the environment when raw sewerage overflows from the manholes.

Although the new sewer collector lines are effectively increasing the capacity of the existing and overloaded sewer network, the additional pipelines are facilitating the collection and transfer of sewerage. The pipelines are not increasing the load or amount of sewerage sent to the sewerage treatment plant because the number of households (source of sewerage) is not being increased.

Explanation: Question 14 Cumulative impacts can be defined as:

- Addictive: the simple sum of all the impacts (e.g. the accumulation of ground water pollution from various developments over time leading to a decrease in the economic potential of the resource).
- Synergistic effects occur where impacts interact with each other to produce a total effect greater than the sum of individual effects. These effects often happen as habitats or resources approach capacity (e.g. the accumulation of water, air and land degradation over time leading to a decrease in the economic potential of an area).
- Time crowding effects occur when frequent, repetitive impacts occur on a particular resource at the same time (e.g. boreholes decreasing the value of water resources).
- Neutralizing effects occur where impacts may counteract each other to reduce the overall effect (e.g. infilling of a wetland for road construction, and creation of new wetlands for water treatment).
- Space crowding effects occur where we have a high spatial density of impacts on a particular ecosystem (e.g. rapid informal settlement).
- Externalisation of disadvantages occurs when there is no or insufficient consideration given to the associated social costs that will be borne by the public.

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The answers to the questions above will form key informants to the identification and consideration of alternatives, including the option not to proceed with the development.

5. Feasible and Reasonable Alternatives

"a description of any identified alternatives to the proposed activity that are feasible and reasonable, including the advantages and disadvantages that the proposed activity or alternatives will have on the environment and the community that may be affected by the activity;"
Regulation 22 (2) (h)

Legislative Background

The very consideration of a development in terms of EIA is about the consideration of alternatives related to the development. The NEMA prescribes that all environmental impact assessments, which are to be utilised in informing an application for environmental authorisation, must identify and investigate the alternatives to the activity on the environment (Sections 24(4)(b)(i) and 24(4A) of NEMA) and include a description and comparative assessment of the advantages and disadvantages that the proposed activity and feasible and reasonable alternatives will have on the environment and on the community that may be affected by the activity (Regulation 22(2)(h) of No. R. 543 of 18 June 2010). If, however, after having identified and investigated alternatives, no feasible and reasonable alternatives exist, no comparative assessment of alternatives, beyond the comparative assessment of the preferred alternative and the option of not implementing the activity (Sections 24(4)(b)(i) and 24(4A) of NEMA), is required during the assessment phase. In this instance, the EAP managing the application must provide the competent authority/MDEDET with detailed, written proof of the investigation(s) undertaken and motivation indicating that no reasonable or feasible alternatives, other than the preferred alternative and the no-go option, exist (Regulation 22(4) of No. R. 543 of 18 June 2010).

Definition of Alternatives

"Alternatives", in relation to a proposed activity, means different ways of meeting the general purposes and requirements of the activity, which may include the following types of alternatives:

- The property on which, or location where, it is proposed to undertake the activity;
  - Refers to both alternative properties as well as alternative sites on the same property.
- The type of activity to be undertaken;
  - Provision of public transport rather than increasing the capacity of roads.
- The design or layout of the activity;
  - Different architectural and or engineering designs.
  - Consideration of different spatial configurations of an activity on a particular site (Site Layout)
- The technology to be used in the activity;
  - Option of achieving the same goal by using a different method or process.
- The operational aspects of the activity;
- Demand
  - When a demand for a certain product or service can be met by some alternative means, i.e. the demand for electricity/storm water controls could be met by supplying more energy or using energy more efficiently by managing demand.
- Input
  - Input alternatives for projects that may use different raw materials or energy sources in their processes.
- Routing
  - Alternative routes generally applies to linear developments (pipeline routes).
- Scheduling and Timing
  - Where a number of measures might play a part in an overall programme, but the order in which they are scheduled will contribute to the overall effectiveness of the end result.
- Scale and Magnitude
  - Activities that can be broken down into smaller units and can be undertaken on different scales, i.e. for a housing development there could be the option 10, 15 or 20 housing units.
- The option of not implementing the activity (no-go option).

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- The no-go option is taken to be the existing rights on the property and this includes all the duty of care and other legal responsibilities that apply to the owner of the property. All the applicable permits must be in place for a land use to be an existing right.

The key criteria when identifying and investigating alternatives are that they should be "feasible" and "reasonable". The "feasibility" and "reasonability" of and the need for alternatives must be determined by considering, *inter alia*, (a) the general purpose and requirements of the activity, (b) need and desirability, (c) opportunity costs, (d) the need to avoid negative impact altogether, (e) the need to minimise unavoidable negative impacts, (f) the need to maximise benefits, and (g) the need for equitable distributional consequences. The (development) alternatives must be socially, environmentally and economically sustainable. They must also aim to address the key significant impacts of the proposed development by maximising benefits and avoiding or minimising the negative impacts.

Given the aforementioned definition and description of alternatives, alternatives for investigation in this assessment were first identified by considering whether the different types of alternatives could meet the general purposes and requirements of the Sewer Collector Lines, and subsequently constitute a comparable activity. Thereafter, the need for an alternative was assessed to determine whether it warranted further investigation. Given the scale and simplicity of the activity (four new Sewer Collector Lines) the majority of the different types of alternatives could not be considered as legitimate alternatives for comparable assessment from the onset of the assessment process because they apply to aspects/parts of the proposed activity (alternative technologies, operational aspects, alternative inputs, etc.). Consequently, those types of alternatives were considered throughout the assessment process to address site-specific impacts that needed mitigation(s).

Purpose and Requirements of the Sewer Collector Lines

The purpose of the New Sewer Collector Lines is to address one of the District Municipality's priority issues in respect of service (water and sanitation) delivery (**IDP (Final) 2012/13 – 2015/16 Nkangala District Municipality**), specifically blocked collector lines and raw sewerage overflowing from manholes (**Appendix D-B**: Engineer's Design Report).
The Sewer Collector Lines are under pressure due to the long distance of collection before reaching the outfall sewer line and some of the pipe diameters are inadequate (**Appendix D-B**: Engineer's Design Report). Consequently, the requirements for this proposed activity were calculated by the Engineer, including specified diameters, lengths and locations (**Appendix D-B**: Engineer's Design Report), thereby reducing the diversity of possible alternatives.

Identification and Investigation of Alternatives Including Motivations

Alternative No. 1: Property and Location

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle.

Methodology

The investigation included a review of the Engineer's Design Report illustrated in **Appendix D-B**.

Criteria used to investigate and assess alternatives

Refer to the Engineer's Design Report illustrated in **Appendix D-B**.

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

An alternative property or location cannot achieve the same purpose and requirements.

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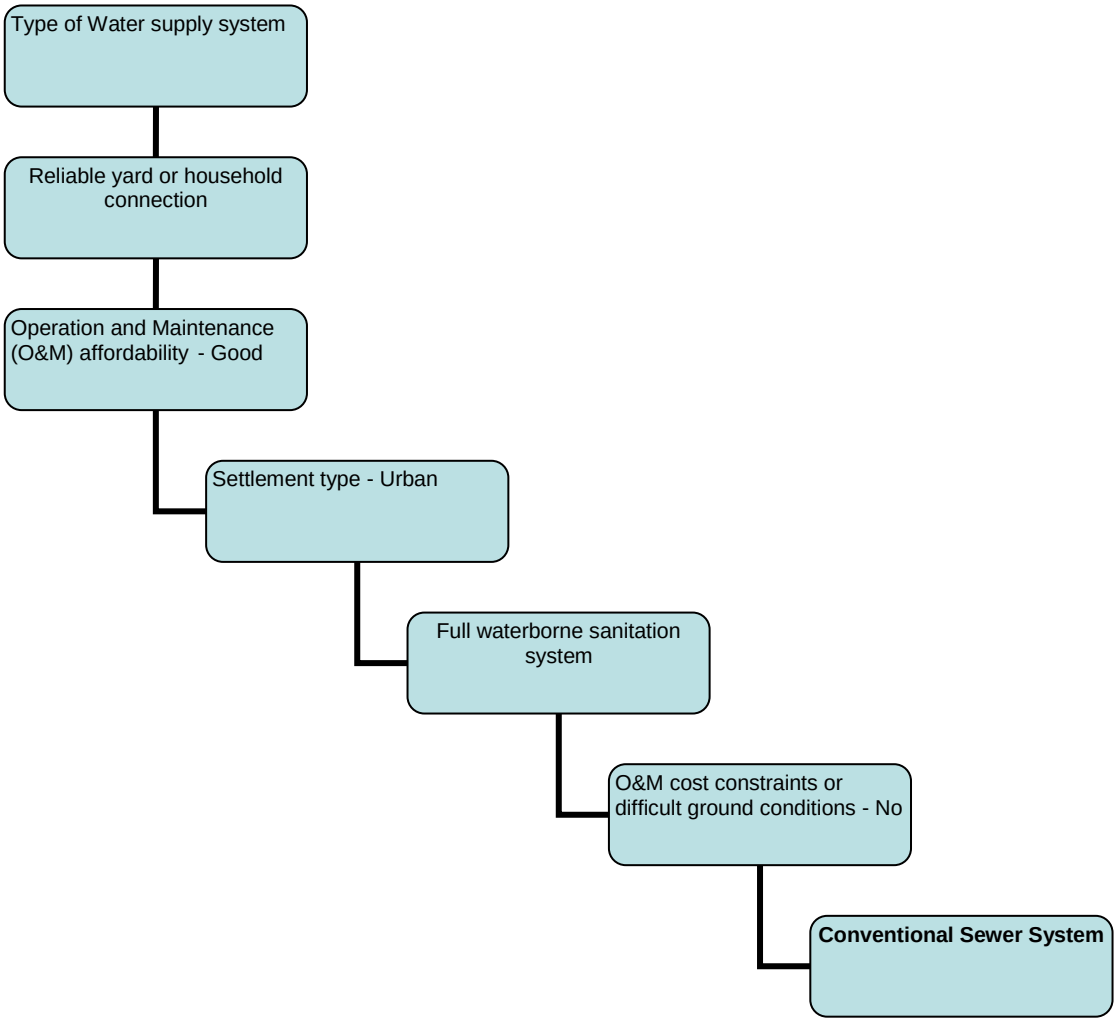
Alternative No. 2: Type of Activity

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. The purpose of the new Sewer Collector Lines, to alleviate the pressure on the existing network, can be achieved by providing different technical sanitation options.

Methodology

The need and desirability of the preferred sanitation system was investigated by utilising the 'Decision Tree for selection of optimum sanitation solution' on page 8 of their document entitled, 'Sanitation Technology Options.' The path undertaken in the aforesaid Decision Tree recommended that a conventional sewer system was the preferred alternative.



Criteria used to investigate and assess alternatives

Refer to the document entitled Sanitation Technology Options prepared by the Department of Water Affairs and Forestry (DWAF), RSA.

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

Although a different type of sanitation technology can achieve the same purpose, there is an existing sewer network and the long-term environmental implications of operating and maintaining the various sanitation systems, particularly on the NFEPA wetland (**Appendix D-A**: Site Sensitivity Plan), are not known.

Alternative No. 3: Design and Layout
Refer to Alternative No. 1 in respect of property and location.

Alternative No. 4: Technology
Refer to Activity No. 2 in respect of the type of activity.

Alternative No. 5: Operational Aspects

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. The purpose of the new Sewer Collector Lines, to alleviate the pressure on the existing network, can be achieved by regulating operational aspects of the sewer network.

Methodology

The investigation was limited to a brainstorming session.

Criteria used to investigate and assess alternatives

NA

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

The municipality of Bulawayo, Zimbabwe's second largest city, regulated the operation of their sewer network during tight water restrictions by asking its residents to synchronise their flushing. This effectively increased the water pressure in the pipes to avoid blockages or ensure the uninterrupted through fare of sewerage. Although Hlalanikahle's problems are the result of too much water pressure (**Appendix D-B**: Engineer's Design Report), operational aspects can be regulated. The different townships (Hlalanikahle, Kwa-Guqa and Clewer) or wards that feed into the main outfall sewer could flush their toilets at different times of the day to avoid the peak flows that put pressure on the existing collector lines. However, this intervention on the use or operation of the sewer network for residents was a temporary measure imposed during a state of emergency (drought). It will require the cooperation of the total population (139 271 people) and need a substantial investment (cost) into community awareness in order to put it into effect. Furthermore, the health and safety implications of restricting flushing to certain periods of the day are not known. It is for these reasons that alternative operational aspects are not considered to be a reasonable or feasible alternative in the long-term.

Alternative No. 6: Demand

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. The purpose of the new Sewer Collector Lines, to alleviate the pressure on the existing network, can be achieved by reducing the demand for water or using it wisely.

Methodology

The investigation was limited to a brainstorming session.

Criteria used to investigate and assess alternatives

NA

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

Peak flows can theoretically be reduced if less water is used. It will require the cooperation of the total population (139 271 people) and need a substantial investment (cost) into community awareness in order to put it into effect. Whilst it may contribute to a reduction in the water pressure of the collector lines, it is not known whether it will resolve the blockages and overflow of raw sewerage from the manholes. Furthermore, the education of a community and implementation of water saving tips by a community is a long-term initiative that will not immediately resolve the existing problem of raw sewerage flowing in the streets. It is for these reasons that affecting demand was not considered to be a reasonable or feasible alternative in the short-term. However, the municipality is encouraged to reduce

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the water pressure during the operation of its new Sewer Collector Lines by implementing a community awareness initiative to save water (refer to the Operational Phase of the EMPr).

Alternative No. 7: Input

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. The purpose of the new Sewer Collector Lines, to alleviate the pressure on the existing network, cannot be achieved by using alternative inputs.

Methodology

NA

Criteria used to investigate and assess alternatives

NA

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

Alternative inputs were not considered to be a reasonable or feasible alternative because they cannot meet the same purpose or requirements of the Sewer Collector Lines proposed by the Engineer. However, the municipality is encouraged to undertake a ground truthing exercise of its storm water infrastructure to determine if it feeds into the sewer network and, if found to occur, remove the connection (refer to the Operational Phase of the EMPr).

Alternative No. 8: Routing

Refer to Alternative No. 1 in respect of property and location.

Alternative No. 9: Scheduling and Timing

Refer to Alternative No. 5 in respect of operational aspects.

Alternative No. 10: Scale and Magnitude

Purpose and Requirements

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. The purpose of the new Sewer Collector Lines, to alleviate the pressure on the existing network, cannot be achieved by using alternative sizes.

Methodology

NA

Criteria used to investigate and assess alternatives

NA

Reasoned explanation why an alternative was or was not found to be reasonable or feasible

Alternative sizes were not considered to be a reasonable or feasible alternative because they cannot meet the same purpose or requirements of the Sewer Collector Lines proposed by the Engineer.

Alternative No. 11: No-go Option

The option of not implementing the activity (no-go option) was used as the benchmark against which all impacts associated with the proposed development were assessed.

Conclusion

Based on the findings of the investigations that were undertaken and reasoned motivations there was no verifiable evidence for the existence of any reasonable and feasible alternative(s) other than the preferred option and the no-go option, at the time of this Basic Assessment process. Consequently, no reasonable and feasible alternatives other than the preferred option and the no-go option were identified, described and assessed.

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6. Environmental Impacts (and Mitigations)

"a description and assessment of the significance of any environmental impacts, including-

(i) Cumulative impacts that may occur as a result of the undertaking of the activity or identified alternatives or as a result of any construction, erection or decommissioning associated with the undertaking of the activity;
(ii) The nature of the impact;
(iii) "the extent and duration of the impact;
(iv) The probability of the impact occurring;
(v) The degree to which the impact can be reversed;
(vi) The degree to which the impact may cause irreplaceable loss of resources; and
(vii) The degree to which the impact can be mitigated;"

Regulation 22 (2) (i)

The general objective of integrated environmental management is, *inter alia*, to "identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimising negative impacts, maximising benefits, and promoting compliance with the principles of environmental management" (Section 23(2)(b) of NEMA).

Ecoleges sets out to achieve section 32 (2) (b) of NEMA by following the logical sequence of steps illustrated in **Figure 1**.The first step has already been completed in SECTION E of this document. A clearly defined scope is absolutely critical for creating the mould within which the EMPr shall be cast.Environmental impacts are defined as any change to the environment, whether adverse or beneficial, wholly or partially resulting from those elements of the proposed activities that interact with the environment. Consequently, the activities need to be identified (step 2) before their impacts (step 3) can be predicted.Step 4 is incorporated as a safety net to capture those elements that are not identified in the previous two steps. Finally, mitigations are sought and tailored to counteract the project-specific impacts and achieve particular goals and objectives in line with environmental best practices.

Figure 1: Procedure for identifying project-specific mitigation of activities.

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Identification of Activities

The activities summarised below were considered within the scope implicit in the potential listed activities (**Table 4**) and are illustrated in a progression of hierarchical relationships (**Figure 2**). The first column illustrates the potential listed activities. The second column describes the actual activities proposed by the applicant, and which triggered the aforementioned listed activities. The final column identifies the associated physical activities required for the successful implementation of the listed or actual activities.

Table 5: Typical physical activities associated with construction projects which shall apply to the construction (and maintenance) of the four new sewer collector lines in Hlalanikahle.

Phased Physical Activities Associated with Construction Projects		
	Yes/ No	**Comments**
Planning and Design		
Compliance with legal requirements by acquiring authorisations, permits and/or licenses for activities/uses undertaken during construction and operation	Yes	
Sustainable resource requirements (water, energy, etc.) for lifespan of project	Yes	Will the sewer treatment plant cope with the additional capacity provided by the new sewer collector lines?
Layout and design including consideration of alternatives	No	There are no alternatives because the specific areas of Hlalanikahle have been selected by the Engineer according to the need and desirability for the upgrade; i.e where there is excessive leaking of sewage.
Construction		
Site establishment (construction camp, sanitation, temporary accommodation and surveying)	Yes	
Contractor's employees (staff conduct, movement)	Yes	
Construction and use of temporary access roads	Yes	
Accommodation of traffic	Yes	
Sourcing water	Yes	
Sourcing building material/sand	Yes	
Stockpiling and material laydown areas	Yes	
Clearing and grubbing (mulch)	Yes	
Earthworks (**infilling** or **depositing** of any material of more than $5m^3$ into... or the **dredging**, **removal** or **moving** of soil, sand, shells, shell grit, pebbles or rock of more than $5m^3$ from)/ Altering, impeding or diverting a watercourse	Yes	
Blasting	No	No blasting is envisaged.
Waste management (solid waste including 'spoil', liquid waste, separation, storage and disposal)	Yes	
Hazardous material (fuel/oil, cement) management (storage and handling)	Yes	
Plant management (parking, driving, repair and maintenance, and refuelling)	Yes	
Building work (concrete work)	Yes	
Disturbing natural areas	Yes	
Site closure	Yes	
Operation (including maintenance)		
Operation employment	No	
Consumption (energy, water, and other resources)	No	
Maintenance	Yes	
Waste management	Yes	
Terrestrial and aquatic ecological management	No	

In summary, the listed and actual activities involve the construction of sewer collector lines No. 3 and 4 (and Lines 1 and 2) covering $10m^2/50m^2$ or more within 32m of a watercourse and excavation of $>5m^3$ of

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soil from a watercourse when constructing sewer collector line No. 3. Associated activities for the construction and maintenance of the pipelines include:

- Compliance with legal requirements
- Sustainable resource requirements in respect of the sewerage treatment plant,
- Site establishment and clearing and grubbing,
- Sourcing, storage/stockpiling and handling of material including water for construction,
- Transport, access and accommodation of traffic,
- Earthworks (infilling or depositing, dredging, excavation, removal or moving) and building/concrete work,
- Disturbing natural areas and altering a water course, and
- Management of employees, waste, hazardous material and plant,
- Site closure, and
- Maintenance and waste management during operation.

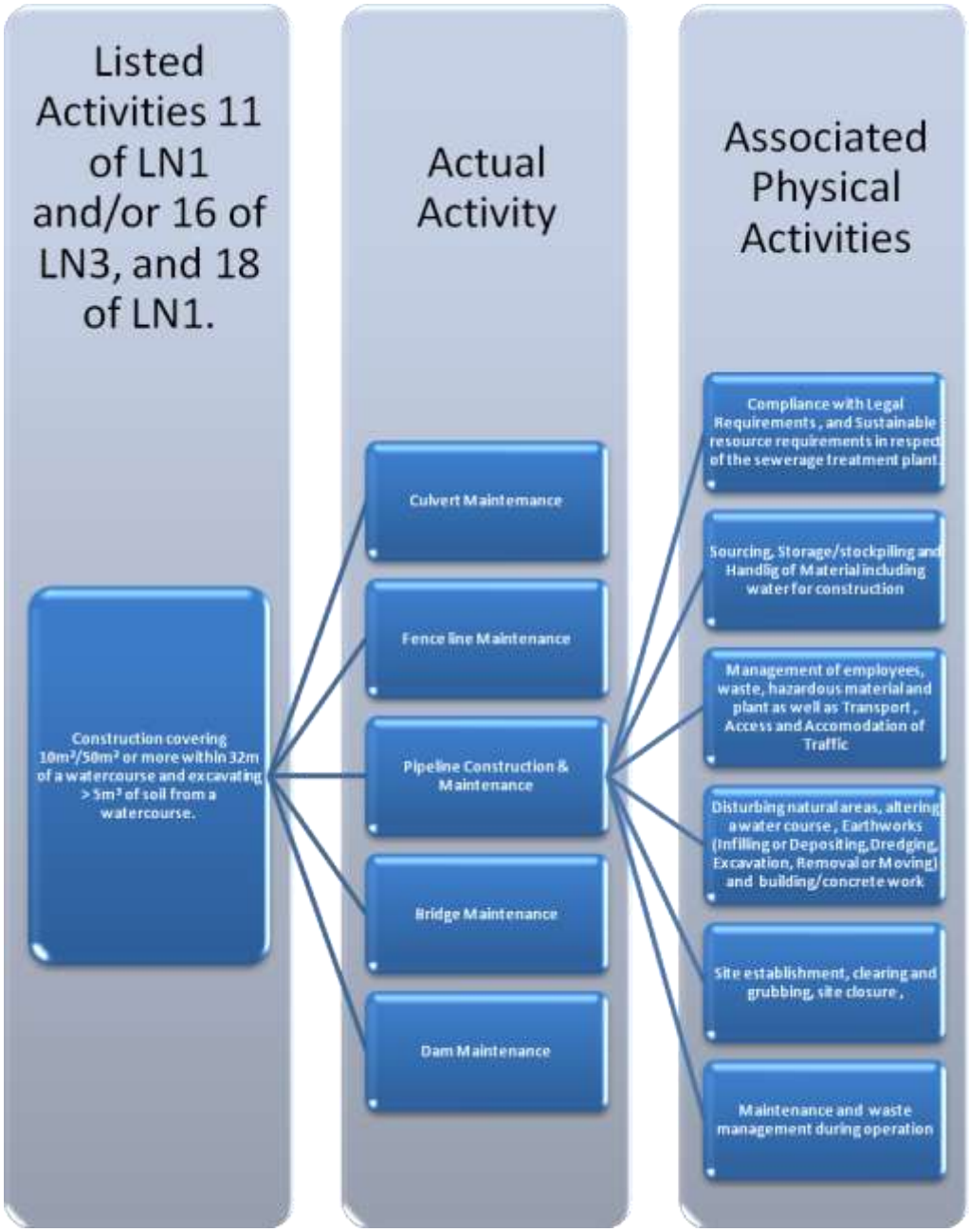

Figure2: Horizontal progression of hierarchical relationships to determine construction and maintenance activities associated with the implementation of LA 11 (LN1), LA16 (LN3) and LA18 (LN1).

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Identification of Actual and Potential Impacts

The impacts are considered within the scope implicit within the potential listed activities (**Table 4**). The relevant impacts resulting from the listed, actual and associated physical activities, including environmental, socio-economic and cultural heritage, are informed by a predetermined list of potential environmental impacts, comments received from Interested and Affected Parties, and/or the findings contained in specialist studies, where applicable (**Figure 3**).

In this case, it was not necessary to undertake any specialist assessments because activities and impacts are restricted mostly to the Township of Hlalanikahleand no cultural or heritage resources were associated with the environment affected by the proposed activity. Impacts were therefore identified using the list of potential environmental impacts (**Table 6**) and comments received from I&APs (**Table 8**).

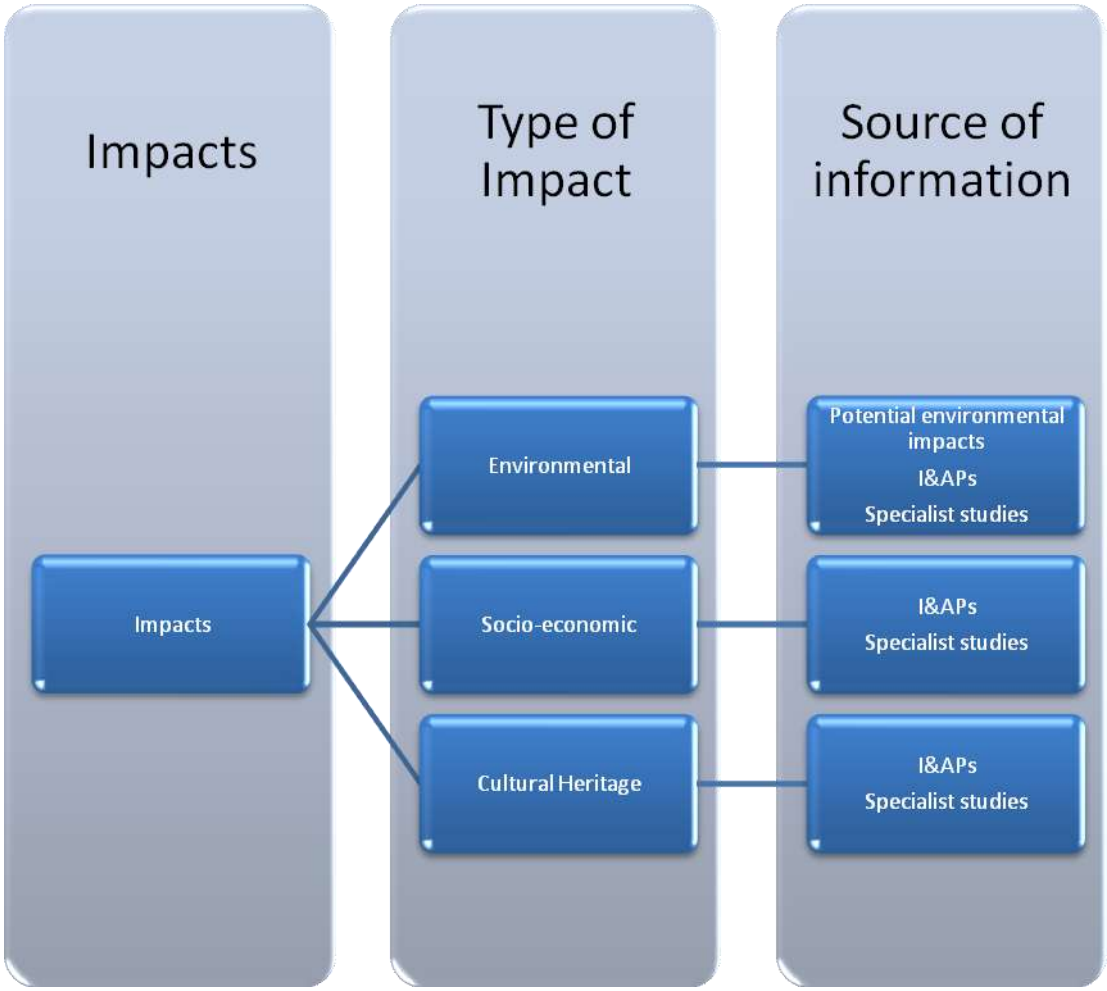

Figure 3: A breakdown of the different types of impacts including the resources used to identify them.

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Predetermined Potential Environmental Impacts

The Impact Categories (**Table 6**) were determined by the manner in which the different potential environmental elements respond to human activities.

Table 6: Categorisation of Potential Environmental Impacts

Impact Category	Receiving Environment	Description of Response
Abiotic elements (component scale impacts)		
Air pollution	Atmosphere	Air quality is changed.
Surface/Ground water pollution	Surface/Ground water	Water quality is changed.
Surface/Ground water loss/gain	Surface/Ground water	Water quantity is changed.
Soil pollution	Soil	Soil quality is changed.
Soil/Rock loss/gain	Soil/Rock	Soil/Rock quantity is changed.
Biotic elements (component scale impacts)		
Terrestrial animal replacement*	Terrestrial fauna	Animal species are changed.
Terrestrial animal loss/gain	Terrestrial fauna	Animal numbers are changed.
Terrestrial plant replacement	Terrestrial flora	Plant species are changed.
Terrestrial plant loss/gain	Terrestrial flora	Plant numbers are changed.
Aquatic animal replacement	Aquatic fauna	Animal species are changed.
Aquatic animal loss/gain	Aquatic fauna	Animal numbers are changed.
Aquatic plant replacement	Aquatic flora	Plant species are changed.
Aquatic plant loss/gain	Aquatic flora	Plant numbers are changed.
Habitat (biotic and abiotic elements) (ecosystem scale impacts)		
Aquatic habitat loss/gain	Aquatic	Habitat size is changed.
Aquatic habitat transformation	Aquatic	Habitat is changed to an alternative state.
Aquatic habitat fragmentation	Aquatic	Habitat is broken up and no longer continuous.
Terrestrial habitat loss/gain	Terrestrial	Habitat size is changed.
Terrestrial habitat transformation	Terrestrial	Habitat is changed to an alternative state.
Terrestrial habitat fragmentation	Terrestrial	Habitat is broken up and no longer continuous.

- "replacement" of one species by another and "transformation" naturally includes the "loss" of all or some of the original species.
- Redundancy is avoided. For example, if an impact affects a tree, it is not recorded as affecting the habitat as well.

The relevant environmental impacts (**Table 7**) were determined through a process of elimination by establishing which Impact Categories (**Table 6**) are influenced by the identified physicalactivitieswithin 32m of a watercourse (**Figure 1**).

Table 7: Relevant Environmental Impacts

Summary of Activities
In summary, the listed and actual activities involve the construction of sewer collector lines No. 3 and 4 (and Lines 1 and 2) covering $10m^2/50m^2$ or more within 32m of a watercourse and excavation of $>5m^3$ of soil from a watercourse when constructing sewer collector line No. 3. Associated activities for the construction and maintenance of the pipelines include: • Compliance with legal requirements • Sustainable resource requirements in respect of the sewerage treatment plant, • Site establishment and clearing and grubbing, • Sourcing, storage/stockpiling and handling of material including water for construction, • Transport, access and accommodation of traffic, • Earthworks (infilling or depositing, dredging, excavation, removal or moving) and building/concrete work, • Disturbing natural areas and altering a water course, and • Management of employees, waste, hazardous material and plant, • Site closure, and

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• Maintenance and waste management during operation.	
Impact Category	**Description of Impact and Phase**
Abiotic elements (component scale impacts)	
Air pollution	Construction: The construction camp can create light pollution at night. Smoke from open fires/burning waste. Noise from Contractor's employees (when communicating verbally and/or when playing radios/watching TV, etc.). Dust may be generated from constructing and driving on access roads and when handling and stockpiling material/cement in windy conditions. Chemical toilets and other organic waste can produce an unpleasant odour. The operation of construction plant and equipment can generate noise, dust and emissions. Operation: odour from possible leaks of sewer.
Surface water pollution	Planning: Offence in respect of unlawful section 21 (i) water uses (Obtain authorisation from the DWA in terms of the NWA, 1998) Construction: Discharge or pumping dirty water from the works area, discharge of grey water from washing equipment, plant, or persons, and discharge of sewerage from improper sanitation within the watercourse. Contamination from poor waste management (littering)including the incorrect handling, storage or disposal of waste. Contamination from spills when refuelling, parking, driving, repairing and operating plant nearby or within the watercourse. Contamination from improper handling and storage of fuel, oil and cement (slurry). Sedimentation resulting from the erosion of access roads. Sedimentation from stockpiling too close to the watercourse. Operation: possible leaks of sewer, contamination from spills when the pipelines leak nearby or within the watercourse.
Surface water loss/gain	Planning: Offence in respect of unlawful section 21 (a) water use (Obtain authorisation from the DWA in terms of the NWA, 1998). Construction: Water required for human needs (drinking, sanitation and food preparation) and building work, including mixing concrete, and watering or compacting gravel roads can be used excessively/wastefully.
Soil pollution	Construction: Contamination from improper sanitation. Contamination from improper waste management including the handling, storage and disposal of waste. Contamination from improper handling and storage of fuel, oil and cement. Contamination from spills when refuelling, parking, repairing and operating plant. Contamination from mixing cement on the ground. Operation: possible leaks of sewer.
Soil/Rock loss/gain	Planning: Offence in respect of illegal sand mining (Obtain authorisation from the DM in terms of the MPRDA, 2002). Construction: Topsoil can be used for building, specifically mixing concrete. Gravel roads and pipeline excavations are also sources of erosion if not maintained or managed because they channel uninterrupted flow. Loss of soil from mining for material to be used in foundation and mixing cement. Contamination of sand from spills and contamination of sand used as an absorbant in bunds and drip trays.
Biotic elements (component scale impacts)	
Terrestrial animal replacement*	NA
Terrestrial animal loss/gain	Construction: Poaching, entrapment in excavations, suffocation from swallowing waste, and accidents from driving into or over animals. Clear and grub operations associated with the establishment of the construction camp, the demarcation of the development footprint and the construction of temporary access roads can destroy mammals and birds directly.

	Material stockpiles and lay down areas can be located in undisturbed areas, smothering tunnelling, burrowing or nesting fauna in/on the ground. The immigration of contractors and labourers increases the risk of poaching for food or traditional medicine. Vehicular movement (driving) and placement (parking), including other construction equipment, can collide with and trample fauna, respectively.
Terrestrial plant replacement	Construction: The disturbance created by clearing activities within plant communities creates favourable habitat for the life history strategies of undesirable plant species. Alien plants can also be introduced by importing foreign contaminated material including topsoil for construction.
Terrestrial plant loss/gain	Planning: Offence in respect of disturbing, cutting or destroying protected plants in terms the relevant legislation. Construction: Clearing operations associated with sand mining, the establishment of the construction camp, the demarcation of the development footprint and the construction of temporary/permanent access roads will destroy plants. Construction activities, such as clearing, may extend beyond the development footprint, known as construction creep. Vegetation stockpiles, material stockpiles and lay down areas can be located in undisturbed areas, smothering living plants. Excessive traffic and dust can smother plants growing on the verge of gravel access roads. Concrete work, specifically mixing on bare ground can smother living plants and create a hard pan layer that prevents recovery. The immigration of contractors and labourers increases the risk of plants being harvested for firewood and/or traditional medicine. The movement of people, driving and parking of vehicles, and location of other construction equipment can trample plants.
Aquatic animal replacement	NA
Aquatic animal loss/gain	NA
Aquatic plant replacement	NA
Aquatic plant loss/gain	NA
Habitat (biotic and abiotic elements) (system scale impacts)	
Aquatic habitat loss/gain	NA
Aquatic habitat transformation*	NA
Aquatic habitat fragmentation	NA
Terrestrial habitat loss/gain	NA
Terrestrial habitat transformation	NA
Terrestrial habitat fragmentation	NA

- * “replacement” of one species by introducing another and “transformation” naturally includes “loss” of the original species.
- Redundancy is avoided. For example, if an impact affects a plant, it is not recorded as affecting the habitat as well.

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Social and Cultural Impacts

Interested and Affected Parties provided comments, which assisted with the identification of community-specific impacts (**Table 8**).

Table 8: Identification of Perceived Impacts from registered I&APs.

I&AP	Source	Comment - Impacts
Hilda Mazibuko (083 589 0420)	Personally during delivery of BID, 05/03/13.	Impact of the need to rebuild a new fence should hers be destroyed or demolished during the construction period.
Jenna Lavin-SAHRA (021 426 4502 jlavin@sahra.org.za)	Email to Hlengile on 15/03/13	This application triggers Section 38(8) of the NHRA (Act 25 of 1999) and as such, SAHRA is a commenting authority and must be kept informed.
	Email to Shaun on 24/04/2013	"…It is unlikely that any significant impacts on heritage resources will result from the proposed development as the area has been previously disturbed. All formal and informal cemeteries and burials must be left *in situ* and not be disturbed. If it is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999), and is subject to mandatory public consultation…"
LinaMahlangu (071 381 8583)	Registration sheet filled in at the meeting on 22/03/13	Impact of pipes or excavations needing her to move.
Martha Ntuli (072 3611134)	Public Meeting on 22/03/13	Impact of having to move should her house need to be demolished.
Moses Skhosana (078 9555471)	Public Meeting on 22/03/13	Impact of pipes traversing his yard without his concern.
JabuNkambule (078 7591696)	Public Meeting on 22/03/13	Impact of the pipes or excavation traversing his house or yard.
PaulosMashiloane (072 071 2298)	Personally during delivery of BID, 05/03/13.	Impact of stockpiles and excavations left unattended for longer periods of time than anticipated, as it poses a threat to his children's lives.
Martha Mabuza (072 361 1341)	Personally during delivery of BID, 05/03/13.	Impact of the sewer lines traversing on the same route as their electricity lines.
Miss Mafokane (076 070 1807)	Personally during delivery of BID, 05/03/13.	Impact of the stockpile and excavations obstructing the road to school.
Vuledzani Thanyani-Eskom Magawatt (0737636629 thanyav@eskom.co.za)	Email to Hlengile on 23/04/13	Impact of infrastructure being very close to Eskom's proposed lines.

The impacts identified by I&APs (**Table 8**), were designated to the applicablephases of implementation (**Table 9**) for timeous consideration and mitigation.

Table 9: Socio-economic impacts and phases of implementation.

Comments	Description of Impact & Phase of Implementation		
	Planning	Construction	Operation (Maintenance including reconstruction)
Impact of the need to rebuild a new fence should hers be destroyed or demolished during the construction period.		Yes	
This application triggers Section 38(8) of the NHRA (Act 25 of 1999) and as such, SAHRA is a commenting authority and must be kept informed.		Yes	
All formal and informal cemeteries and burials must be left *in situ* and not be disturbed. If it is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999), and is subject to mandatory public consultation.		Yes	
Impact of pipes or excavations needing her to move.		Yes	
Impact of having to move should her house need to be demolished.		Yes	
Impact of pipes traversing his yard without his concern.		Yes	
Impact of the pipes or excavation traversing his house or yard.		Yes	
Impact of stockpiles and excavations left unattended for longer periods of time than anticipated, as it poses a threat to his children's lives.		Yes	
Impact of the sewer lines traversing on the same route as their electricity lines.		Yes	
Impact of the stockpile and excavations obstructing the road to school.		Yes	
Impact of infrastructure being very close to Eskom's proposed lines.	Yes	Yes	

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Methodology for Assessing Environmental Impacts

Natural environmental, socio-economic, and cultural impacts shall be assessed using the approach outlined below.

Natural environmental impacts were identified systematically by considering how the site-specific activities (**Figure2**) for each phase of development will interact with all elements of the receiving environment (**Table 6**) including land (abiotic and biotic), water (abiotic and biotic) and air.All impacts, including those identified by I&APs and Specialists, if applicable, will be measured against the current land-use activity (the no-go option/option of not implementing the activity) and systematically assessed by rating a suite of generic criteria (**Table 10**) established by the Department of Environmental Affairs and Tourism (DEAT 2002). The criteria are:

- Extent or spatial scale,
- Intensity or severity of the impact,
- Duration of the impact,
- Mitigatory potential,
- Social acceptability,
- Degree of certainty,
- Status of the impact, and
- Legal requirements.

The magnitude and significance of impacts were determined by describing the impacts in terms of the above criteria. The criteria provide a consistent and systematic basis for the comparison and application of judgements.

The suite of criteria was sought for its applicability to EIA, specifically by making provision for the variety of perspectives. Significance is an anthropocentric concept that makes use of value judgements and science-based criteria.Judgement and values are used to greater extent in EIA than science-based criteria and standards (DEAT 2002). Considering value judgements can vary greatly amongst different stakeholders, professional judgement, such as that of the EAP, should ideally be used in conjunction with the different value judgements expressed by various stakeholders. In other words, significance should be communicated from a variety of perspectives other than the professional opinion of a multidisciplinary study team, and include environmental, socio-economic or cultural attributes perceived by society to be significant. Despite the potential variety of perspectives, they can be categorised into three broad forms of recognition or determination of impact significance, namely institutional (laws, plans or policy statements), public and technical (scientific or technical knowledge or judgement of critical resource characteristics) recognition (DEAT 2002). Consequently, the magnitude and significance of impacts were as far as possible determined by reference to legal requirements, accepted scientific standards and/or social acceptability.

Significance is relative and must always be set in a context to show whose values they represent. The selected criterion provides such a context, taking all three forms of recognition into account by asking whether impacts are legally, publically and professionally recognised as important. The thresholds, against which significanceof a given environmental effect was measured or determined, were provided by a set of ratings for each criterion (**Table 10**).Thresholds of significance were as far as possible based on/determined by reference to legal requirements, accepted scientific standards or social acceptability. Ratings are High (H), Moderate (M), Low (L) or No Impact (N) and determined according to clearly defined descriptors. The ‘No Impact’ rating includes reference to ‘no impacts beyond prescribed thresholds’. In other words, mitigations that change the ratings of any particular criteria to ‘N’ do not necessarily infer zero impact, but rather that the impact is restricted to prescribed thresholds as defined in the goal and objective(s) of the proposed mitigation(s). The significance of the impacts of the proposed project was assessed both with and without mitigation action.

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Table 10: Impact Evaluation Criteria, Ratings and Descriptors.

Criteria	Ratings and Descriptors			
	High (H)	**Moderate (M)**	**Low (L)**	**No Impact (N)**
Spatial Scale/ Extent	Provincial, National, or International. Far beyond the site boundaries. Widespread	Local (within the farm boundary) to Regional (beyond the farm boundary, impact affects neighbours).	Development footprint to within the site boundary.	No area is affected.
Intensity/ Magnitude	Functioning of processes will cease. Complete change in species occurrence and variety. Disturbance of pristine areas/plants pf conservation concern that have important conservation value. Magnitude of impact exceeds legal limits, scientific standards or social acceptability.	Modified processes will continue. Moderate change in species occurrence and variety. Disturbance of potential conservation areas or are of use as a resource.	Natural processes are affected, but not modified. Minor change in species occurrence and variety. Disturbance of degraded areas.	Natural processes are not affected.
Duration	Permanent Beyond decommissioning. Long term (>2yr)	Temporary Lifespan of the operational phase. Medium term (>1<2yr)	Immediate, once-off. Lifespan of the construction phase. Short term (<1yr) Restricted to a season.	
Mitigatory Potential	High potential to mitigate and achieve objectives.	There is a moderate potential to mitigate, and achieve objectives.	There is a potential to mitigate, but there remains a risk of the objectives not being met.	No mechanism for mitigation and achieving the objectives.
Acceptability	Unacceptable Abandon project or design.	Manageable with expensive regulatory controls and the project proponent's commitments	There is some risk to public health/ environment, but it is easily averted using simple controls/ mitigations	Acceptable No risk to public health/ environment.
	Definite (D)	**Probable (P)**	**Improbable (I)**	**No Impact (N)**
Degree of Certainty/Probability of the impact occurring	Substantial supportive data. Impact will occur regardless of preventive measures. High probability. >95%	There is a chance/risk of the impact occurring. Moderate probability. 5-95%	It is unlikely that the impact will occur. Low probability. <5%	The impact will not occur. 0%
	Negative	**Neutral**	**Positive**	
Status	Net loss of resource. Adverse	No net loss or gain.	Net gain of resource. Beneficial	

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Assessment of Impacts

The identified actual and potential Impacts, including the relevant environmental impacts, comments received from I&APs and findings contained in specialist assessments, are segregated amongst the different phases of implementation (planning and design, pre-construction and construction, operation and decommissioning, where applicable) so that they can be logically managed/mitigated for by the responsible role players at the appropriate time. Apart from the aforementioned impacts, a number of mandatory impacts (for consideration during the planning and design phase) are included for evaluation in all environmental impact assessments, including, *inter alia*, Potential Offences and Consumption of Resources. Furthermore, 'Degradation' is defined and treated as an impact during construction.

Planning and Design Phase

Impact 1 Potential Offences

Description

- **Protected Plants**. Clearing operations in the pipeline servitudes will disturb or destroy natural flora, including protected plants. Licenses/permits are required prior to impacting protected trees in terms of the Mpumalanga Nature Conservation Act, 1998 (Act No. 10 of 1998)[1], the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)[2]and the National Forests Act, 1998 (Act No. 84 of 1998)[3].
- **Mining**. Material will be required to cover the pipe inside the excavation. Borrow pit licensing is classified as small-scale mining under the Mineral and Petroleum Resources Development Act, 1991 (Act 50 of 1991) and is administered by the Department of Minerals and Energy, through whom any permit applications must be lodged[4].
- **Altering a watercourse**. The construction of Sewer Collector Line No. 3 in a disturbed wetland will alter the bed, banks, course or characteristics of the watercourse. The aforementioned impact comprises a section 21(i) water use[6]. The section 21(i) water use means any change affecting the resource quality within the riparian habitat or 1:100 year flood line, whichever is the greater distance[5]. Any person who contravenes any provision of section 151(1) of the NWA, 1998 is guilty of an offence and liable, on the first conviction, to a fine or imprisonment for a period not exceeding five years, or to both a fine and such imprisonment and in the case of a second or subsequent conviction, to a fine or imprisonment for a period not exceeding ten years or to both a fine and such imprisonment.
- **Taking Water**. Water may be abstracted illegally for use during construction. In terms of section 25(1) of the NWA, 1998[6] the person authorised to use water for irrigation may request a water management institution to use some of that water for a different purpose, such as construction. In terms of section 25(2) of the NWA, 1998[6] a person holding an entitlement to use water may surrender that entitlement or part thereof to facilitate a license application for the use of water from the same resource in respect of other land. A landowner may take water without a water use license but it is subject to the provisions and limitations prescribed in General Authorisation No. 399 published in Government Gazette No. 26187 on 26th March 2004[7].
- **Servitudes and Wayleaves**. The construction of the Sewer Collector Line No. 4 will intersect Eskom's servitude/power lines (Distribution and/or Transmission)[11]. Construction without permission will constitute an offence in terms of the relevant legislation, such as the Electricity Act, 1987 (Act 41 of 1987), as amended in 1994[8].
- **Access Roads**. The construction of any access roads will need to be authorised in terms of the NEMA listed activities, 2010 if they exceed certain thresholds[9].
- **Compliance Monitoring**. Construction may commence prior to the appointment of an Environmental Control Officer (ECO), which is a condition of this EMPr.

Uncertainties & limitations with predicting this impact

- None

Assumptions made when assessing the impact

- No plants protected will be disturbed during construction because activities will be limited to disturbed sites including a disturbed wetland system and gravel roads in the Hlalanikahle Township.
- Cover material will not be mined or imported. In-situ material will be used to bury the pipe. Consequently, a sand mining permit is not required.
- A temporary access road will not be required to access sewer collector line No. 3. Transport on the aforesaid line will be restricted to the working servitude.
- The contractor will obtain water from a commercial source if water is required during construction.
- Mr Sampie Howard Shabangu of DWA required the Applicant to apply for a GA to construct all four sewer collector lines because the 1:100 year flood line was not known[10].

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Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	H	H	H	H	H	P	Negative
With	H	N	H		N	I	Neutral

Reference (legal, scientific, social or other criteria)

1. The Mpumalanga Nature Conservation Act, 1998 (Act No. 10. of 1998).
2. National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
3. The National Forests Act, 1998 (Act No. 84 of 1998), including Schedule in Government Notice No. 1042, dated 10 September 2004.
4. Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002).
5. DWA (2007), Guideline for Developments within a Flood line (Edition 1), Department of Water Affairs and Forestry, Pretoria, South Africa.
6. National Water Act, 1998 (Act No. 38 of 1998).
7. General Authorisation No. 399 published in Government Gazette No. 26187 on 26th March 2004.
8. Electricity Act, 1987 (Act 41 of 1987), as amended in 1994.
9. GN No. R. 546, 18th June, 2010 (LN3).
10. Personal Communication with Mr Sampie Howard Shabangu.
11. Comment Received from Registered I&AP (Vuledzani Thanyani, Senior Environmental Advisor-ESKOM) (Table 8).

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Section 24G of NEMA allows for the rectification of unlawful commencement or continuation of a listed activity.
- Non-compliance with other legislation may result in criminal prosecution or other actions provided for in the relevant legislation.

Mitigations

Goal: Achieve compliance.

Objective(s) (including targets):

- Comply with all relevant legislation.

Impact 1 **Potential Offences**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	ELM ECO	ELM shall apply for and obtain the relevant licenses/permits from the appropriate authorities (MTPA, DAFF, and/or DEA) prior to disturbing or destroying any protected plants.
Avoidance	Contractor	The contractor shall obtain imported material from a licensed, commercial borrow pit.
Avoidance	ELM EAP	ELM shall apply for and obtain a GA before commencing with construction of the four sewer collector lines.
Avoidance	ELM Contractor	Should water be required for construction activities relating to the pipelines and if the contractor needs to purchase irrigation water from a land owner, a temporary transfer of allocation must be obtained from the DWA before construction commences.
Avoidance	ELM Engineer	The Engineer shall apply, on behalf of ELM, for a wayleave(s) from Eskom (Vuledzani Thanyani, 011 800 5601 or 073 763 6629 thanyav@eskom.co.za), before commencing construction of Sewer Collector Line No. 4 through the relevant servitude(s); Duvha-Kendal 400kV and Duvha-Apollo 400kV.
Avoidance	NDM/ELM	An experienced and independent ECO shall be appointed prior to the commencement of construction to oversee construction, including the identification and permitting/licensing of protected plants prior to clearing.

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Impact 2 Sustainability

Description

- The existing sewerage treatment plant will have a limited design capacity to treat raw sewerage. If this capacity is exceeded it could significantly reduce the quality of the effluent discharged from the plant.

Uncertainties & limitations with predicting this impact

- The design capacity of the sewerage treatment plant is not known.

Assumptions made when assessing the impact

- Although the new sewer collector lines are effectively increasing the capacity of the existing and overloaded sewer network, the additional pipelines are facilitating the collection and transfer of sewerage. The pipelines are not increasing the load, amount or throughput of sewerage sent to the sewerage treatment plant because the number of households (source of sewerage) is not being increased[1].

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	NA	NA	NA	NA	NA	NA	NA
With	NA	NA	NA	NA	NA	NA	NA

Reference (legal, scientific, social or other criteria)

1. Personal communication with Kehla Ngomane of ECA Consulting.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Na.

Mitigations

- None required.

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Construction Phase

Impact 1 Pollution of air (quality) directly through the generation of light, dust, noise and emissions

Description
- Construction can create light pollution if undertaken at night and from the construction camp,
- Smoke from open fires/burning waste,
- Noise from Contractor's employees (when communicating verbally and/or when playing radios/watching TV, etc.),
- Dust may be generated from constructing and driving on access roads,
- Dust may be generated when transporting, handling and stockpiling material/cement in windy conditions,
- Chemical toilets and other organic waste can produce an unpleasant odour.
- The operation of construction plant and equipment can generate noise, dust and emissions.

Uncertainties & limitations with predicting this impact
- The magnitude of the impact, specifically the effects on ambient air quality, was not known.

Assumptions made when assessing the impact
- No new access roads will be constructed.
- Construction vehicles will not generate any more dust on existing gravel roads than currently experienced by residents because few construction vehicles will be on site.
- The construction camp will not generate light pollution because the township is lit by towering street lights at night.
- Noise will not become a nuisance or disturbance[1]because it is unlikely that noise generated from the construction activities/camp will be louder than existing noise levels from the community, i.e loud music, bells/hoots from the taxis and kids playing in the street.
- Dust generation will be restricted to delivering, handling and stockpiling of material.
- There will be no blasting.
- None of the activities require an atmospheric emissions license[2 and 3].

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L-M	L	L	H	L	P	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)
1. Schedules 4 and 5 of the National Regulations regarding Noise Control made under section 25 of the Environment Conservation Act, 1989 (Act 73 of 1989) in GN No. R 154 of Government Gazette No. 13717 dated 10 January 1992.Note that section 25 of the Environment Conservation Act is not repealed by NEMA (107 of 1998).
2. National Environmental Management: Air Quality Act, 2004 (Act No. 39 0f 2004).
3. List of activities which result in atmospheric emissions. Government Notice No. 248 in Government Gazette No. 33064 of 31 March 2010.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- Impact reversibility is determined by nature and extent of the impact on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage.
- Air pollution contributes to a global concern called the greenhouse effect.

Mitigations
Goal: Control air pollution
Objective(s) (including targets):
- To reduce noise levels to within locally, socially acceptable limits such that it does not become a disturbing noise or noise nuisance.
- To reduce light, dust and fuel emissions to within locally, socially acceptable limits.
- To reduce foul-smelling odours from the chemical toilets or waste.
- To prevent the generation of smoke from activities other than cooking.
- To prevent windblown dust from delivering material.
- To reduce windblown dust from handling material and/or cement.

Impact 1**Pollution of air directly through the generation of light, dust, noise and emissions**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	Contractor	Unnecessarily loud noise is prohibited.
Reduction	Contractor	Construction plant and equipment shall be kept in good working order.
Avoidance	Contractor	Construction shall be limited to daylight hours.
Reduction	Contractor	Chemical toilets shall be kept hygienic and cleaned daily.
Reduction	Contractor	Chemical toilets shall be emptied when the drums are half full.
Avoidance	Contractor	All waste bins shall have lids.
Avoidance	Contractor	Do not litter, burn or bury waste on any property.
Avoidance	Contractor	Open fires are prohibited.
Avoidance	Contractor	Trucks transporting material shall be covered.
Reduction	Contractor	Do not handle material and cement during excessively windy conditions.

Impact 2 Loss of surface and ground water (quantity) directly through construction activities

Description
- Water required for human needs (drinking, sanitation and food preparation) and building work, including mixing concrete and watering gravel roads can be used excessively/wastefully.

Uncertainties & limitations with predicting this impact
- The magnitude of the impact, specifically the quantities of water required for human needs and construction activities, including the amount likely to be wasted, was not known.

Assumptions made when assessing the impact
- Dust suppression will not be required on gravel access roads because the construction vehicles will not generate any more dust than currently experienced by residents because few construction vehicles will be on site.
- Water will be required by staff for human needs.

Assessment

Mitigation Action	**Spatial Scale/ Extent**	**Intensity**	**Duration**	**Mitigatory Potential (to meet objectives)**	**Social Acceptability**	**Probability of the Impact occurring**	**Status**
Without	L	N	L	H	L	P	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)
- None.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- Water is a limited resource in South Africa. However, the potential impact of water loss associated with reconstruction activities will be once-off and does not constitute an additional and permanent off-take from the resource. The extent to which it is replaceable is dependent on subsequent rainfall and regeneration of the resource.

Mitigations
Goal: Control water use during reconstruction.
Objective(s) (including targets):
- To prevent the excessive use or wasteful loss of water.
- To use only the absolute minimum amount of water required for human needs and construction.

Impact 2 **Wasteful loss of water (quantity) directly through construction activities**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	Contractor	Water leaks shall be repaired immediately upon being found.
Avoidance	Contractor	Water shall be used sparingly to prevent excessive run-off when wetting the road works/layers.
Avoidance	Contractor	Water taps shall be closed when not in use.
Avoidance	Contractor	The Contractor shall not water gravel access roads.

Impact 3 Loss of soil/rock(quantity) directly from erosion, sand mining, contamination and mixing

Description
- Topsoil can be mixed with cement, subsoil or pulverised by trucks.
- The clearing of vegetation for temporary roads and the pipeline will create exposed surfaces that channel uninterrupted flow and cause erosion, particularly on steep slopes.
- Gravel roads and pipeline excavations are also sources of erosion if not maintained or managed.
- Lost soil from erosion of access roads,
- Loss of soil from mining for material to be used in foundation and mixing cement,
- Contamination of sand from spills and contamination of sand used as an absorbant in bunds and drip trays.

Uncertainties & limitations with predicting this impact
- The magnitude of the impact, specifically the amount of soil that will be infilled and removed, and lost to erosion and contamination, was not known.

Assumptions made when assessing the impact
- The contractor will not construct any access roads.
- Sewer collector line No. 3 is only 40m long so the cleared working servitude will not be exposed to erosion for an extended period of time.
- Erosion is a natural phenomenon and cannot be prevented without permanent and/or hard structures. It can, however, be controlled and reduced.
- Material will be sourced externally if the in situ material is not suitable[1].

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L	L	M	H	L	D	Negative
With	L	N	L		L	I	Neutral

Reference (legal, scientific, social or other criteria)
1. Personal Communication with Kehla Ngomane of ECA Consulting.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- Lost topsoil cannot be replaced, unless imported from elsewhere, given the geological scale required for its creation through the weathering of parent material/rock.
- The extent of reversibility is dependent on the severity of the erosion, including the nature of the remaining *in situ* material, the amount of soil that has been exported from a site and whether or not the exported soil is recoverable. For example, soil washed from a gravel road into a mitre drain can be graded back onto the surface of the road, whereas soil that is washed from a gully into a water course is not recoverable and the source cannot be re-instated without significant intervention and cost. Although erosion has the potential to irreversibly change the relief, eroded sites can be stabilized through rehabilitation measures.

Mitigations
Goal: Control the loss of soil.
Objective(s) (including targets):
- To reduce erosion in the work area.
- To reduce and prevent the contamination of soil.
- To preserve the topsoil.
- To restrict sand mining to authorised areas.

Impact 3 **Irretrievable loss of soil through erosion, sand mining, and contamination**		
Type of mitigation	**Responsible authority**	**Mitigation**
Reduction	Contractor	Protect all areas susceptible to erosion by installing all the necessary, temporary and/or permanent mechanisms for controlling/diverting storm water run-off, dissipating water energy and encouraging infiltration as soon as possible.
Rectification	Contractor	Correct any cause of erosion at the onset thereof by controlling/diverting storm water run-off, immediately repairing and stabilising/rehabilitating impacted areas in the most appropriate manner.
Reduction	Contractor	Construction plant and equipment shall be kept in good working order.

Avoidance	Contractor	Drip trays shall be placed under stationary vehicles.
Avoidance	Contractor	Sand or soil is prohibited from being used as an adsorbant in drip trays.
Avoidance	Contractor	Spills shall not be covered with sand or soil.
Avoidance	Contractor	The contractor shall obtain imported material from a licensed, commercial borrow pit.
Avoidance	Contractor	The Contractor is prohibited from driving on topsoil stockpiles and windrows.
Avoidance	Contractor	Do not mix topsoil with cement. It is to be used for rehabilitation only.
Avoidance	Contractor	Topsoil shall be windrowed separately from the subsoil and opposite the working side of the trench.
Reduction	Contractor	Contain surface water run-off and loose sediment within excavations.

Impact 4 Pollution (quality) of soil and surface water directly through contamination by construction activities and sedimentation

Description

The same types of activities that can pollute the ground, can impact the watercourse given the proximity of the activities to the watercourse and the potential for storm water run-off to carry pollutants into the watercourse.

- Construction activities will produce solid and liquid waste, which can contaminate the ground and watercourse if inappropriately handled, stored or disposed.
- Construction plant and equipment can drive through and/or be washed in the watercourse.
- Hazardous materials (fuel, oil and cement)can contaminate the ground and watercourse if inappropriately stored and handled, such as concrete mixing (slurry).
- Prolonged exposure of disturbed areas, including trenches, within a watercourse will increase the risk of seasonal flows, causing erosion and sedimentation.
- Stockpiled/windrowed material can wash into a watercourse.
- Discharge or pumping dirty water from the works area.
- Discharge of grey water from washing equipment, plant, or persons.
- Discharge of sewerage from improper sanitation within the watercourse.
- Contamination from spills when refuelling, parking, driving, repairing and operating plant nearby or within the watercourse.
- Spills can be covered with virgin soil or be washed into the watercourse by storm water run-off.
- Sedimentation of the watercourse can result from the erosion of exposed areas adjacent to or within the watercourse, including access roads.
- Contamination of the ground and watercourse from improper sanitation.

Uncertainties & limitations with predicting this impact

- The magnitude of the impact, specifically the extent and severity of the soil and water pollution, was not known.
- The volumes and types of different waste produced by individuals, construction and plant were unknown.

Assumptions made when assessing the impact

- The mitigation(s) proposed for addressing erosion will concurrently control sedimentation.
- Fuel tanks including their bunds will not be constructed within 32m from the edge of the watercourse/wetland. They will be constructed within the main construction camp.
- Fuel drums, if any, will be stored and handled at the main construction camp.
- There is no surface or flowing water in the disturbed wetland system so sedimentation cannot occur from erosion or windrowed and stockpiled material.
- There is no surface or flowing water in the disturbed wetland system so the discharge of dirty seepage from the excavations will not impact a watercourse (or an aquatic habitat).
- The location where Sewer Collector Line No. 1 will connect with the outfall sewer is beneath an illegal waste dump[2].

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L	L	L	H	L	P	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)
1. The National Water Act (Act 36 0f 1998) is administered by the DWA.
2. Furthermore, the impact is assessed against the natural conditions that occurred before the immigration of man or machine. In other words, the contractor has to leave a site in the same condition or better than he/she found it. The condition of the site(s) was determined during the inspection(s).

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- Soil is a valuable and finite resource given the geological scale required for its creation through the weathering of parent material/rock. The adoption of a site-specific and integrated waste management strategy can avoid the impact entirely, apart from unforeseen accidents. In the latter case impact is reversible if prompt action is taken to confine the waste, dispose of it appropriately and rehabilitate the affected site.
- The reversibility of surface water pollution is dependent on the nature and extent of the pollution.

Mitigations
Goal: Control soil and surface water pollution.
Objective(s) (including targets):
- To prevent all manner of waste from entering the pristine environment.
- To reduce soil and water contamination, including *inter alia* sedimentation, associated with construction activities.

Impact 4 **Pollution of soil (quality) and surface water (quality) directly through contamination by construction activities, sedimentation or fishing**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	Contractor	The Contractor shall locate the construction camp on existing disturbed or the least sensitive sites above the 1:100 year flood line or further than 32m from the edge of a watercourse, whichever is greatest.
Avoidance	Contractor	The contractor shall restrict the following activities to the construction camp: Accommodation, Sanitation, Waste storage, Parking, Storing hazardous materials, Repair/maintenance Re-fuelling, Bulk concrete batching, Material stockpiles, and Lay down areas.
Reduction	Contractor	Establish and implement an Integrated Waste Management Strategy including avoidance, reduction, re-using, recycling and disposal, i.e. the production of hazardous waste can be **avoided** by providing drip trays, **reduce** waste by using the correct quantities, **re-use** concrete rubble as back fill or **recycle** steel off-cuts and **dispose** of non-hazardous solid waste at a registered municipal dump site.
Reduction	Contractor	Induct all labourers on the waste management strategy and enforce it through regular (at least weekly) toolbox talks.
Reduction	Contractor	Separate general, recyclable, natural (vegetation and soil/rock) and hazardous waste, and demarcate different containers for different waste types using colour codes.
Avoidance	Contractor	Do not litter, burn or bury waste on any property.
Avoidance	Contractor	A dustbin shall be available at each work front during working hours.
Avoidance	Contractor	The contractor shall dispose of general waste at a registered municipal dump site.
Avoidance	Contractor	The contractor shall return used oil to the supplier or an oil recycling company.
Avoidance	Contractor	Washing of construction plant and mechanical equipment including brushes shall not occur on site or in a watercourse, but shall be restricted to the main construction camp.
Avoidance	Contractor	The contractor shall contain contaminated water from washing brushes in a conservancy tank until sufficient volume warrants

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		disposal by a registered hazardous waste management company.
Reduction	Contractor	Remove ineffective danger tape/netting that has begun to litter the site or surrounding areas.
Avoidance	Contractor	Designate a temporary waste storage area, enclose it in a fence that cannot be breached by fauna, and provide sufficient scavenger proof dust bins with black bags inside the construction camp.
Reduction	Contractor	Imported material stockpiles shall be located outside the demarcated disturbed wetland system and on a disturbed site or other site approved by the ECO as a stockpile area.
Avoidance	Contractor	The contractor shall provide sufficient (1:10) chemical toilets, unless existing facilities can be used.
Avoidance	Contractor	Chemical toilets shall be located in the shade and outside the demarcated disturbed wetland system.
Avoidance	Contractor	Use chemical toilets that contain the sewerage in a closed and removable 'tank', i.e. do not use open drums. Environmentally friendly toilets should also be considered e.g. E-loo's.
Avoidance	Contractor	All persons shall use only the provided facilities for sanitation.
Avoidance	Contractor	Chemical toilets shall be kept hygienic and cleaned daily.
Avoidance	Contractor	The contractor is prohibited from discharging waste water, including domestic water from sanitation facilities, and grey water from washing equipment or plant into a watercourse.
Avoidance	Contractor	The disturbed wetland system adjacent Sewer Collector Line No. 4 shall be designated as a no-go area and demarcated with danger tape or netting.
Avoidance	Contractor	Construction vehicles and equipment are prohibited from entering the disturbed wetland system.
Avoidance	Contractor	The trench for Sewer Collector Line No. 3 shall be excavated by hand.
Avoidance	Contractor	Washing of construction plant and mechanical equipment including brushes shall not occur on site or in a watercourse, but shall be restricted to the main construction camp.
Reduction	Contractor	Re-fuelling with a mobile fuel bowser shall take place outside any watercourse.
Avoidance	Contractor	The contractor shall store hazardous material within a secure, safe and bunded facility at the construction camp.
Avoidance	Contractor	Use drip trays for refuelling, repair/maintenance work and all stationary construction plant and equipment that can leak, such as TLBs, compressors and generators.
Reduction	Contractor	Construction plant and equipment shall be kept in a good state of repair to reduce hydrocarbon leakages and emissions.
Reduction	Contractor	Emergency repairs or maintenance shall include procedures to minimize contamination of the ground.
Avoidance	Contractor	Remove topsoil from the area within the perimeter of the construction camp and stockpile separately for use during rehabilitation of the site.
Avoidance	Contractor	Do not cover spills with virgin soil. It merely increases the disposal cost for a greater volume of hazardous waste.
Rectification	Contractor	Immediately remove contaminated soil to the depth of penetration and temporarily store in a designated solid hazardous waste container until sufficient volume warrants disposal at a registered hazardous waste dump site. Alternatively, onsite treatment of contaminated soil should be considered with a registered hazardous waste management company.
Avoidance	Contractor	Do not mix concrete on open ground. Mix in a wheel barrow, a mixing tray or on a level plastic sheet.
Avoidance	Contractor	The contractor shall prevent the run-off of slurry or cement contaminated water from concrete/plaster mixing sites.
Rectification	Contractor	Break up all concrete hard pan layers and dispose of appropriately (at a legitimate dump site) or re-use the concrete.
Reduction	Contractor	The contractor shall implement appropriate procedures, such as the use of a ground cover, to prevent the contamination of the ground when handling hazardous materials, including re-fuelling.

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Reduction	Contractor	Appropriate mitigation to control/reduce sediment input into watercourses shall be implemented during construction.
Reduction	Contractor	Trenches may not be excavated more than one day prior to installing the pipe.
Avoidance	Contractor	With the exception of search and rescue operations authorized by the ECO, no mammal, bird, reptile, invertebrate or fish shall be intentionally caught, harmed and/or killed.
Reduction	Contractor	As far as possible, commence construction (clearing) at the onset of the dry season in order to prevent erosion, siltation and wash-away of topsoil and sedimentation into the wetlands, seepage areas, drainage lines or rivers.
Avoidance	ELM	ELM shall remove the illegal waste dump on the proposed route for Sewer Collector Line No. 1 to a licensed landfill site.

Impact 5 Loss/gain of terrestrial animals including mammals directly through clearing, smothering, poaching, colliding, trampling, excavation, and littering

Description

- Clear and grub operations associated with the establishment of the construction camp, the demarcation of the development footprint and the construction of temporary access roads can destroy mammals and birds directly, and indirectly through habitat loss.
- Material stockpiles and lay down areas can be located in undisturbed areas, smothering tunnelling, burrowing or nesting fauna in/on the ground.
- The immigration of contractors and labourers increases the risk of poaching for food or traditional medicine.
- Vehicular movement (driving) and placement (parking), including other construction equipment, can collide with and trample fauna, respectively.
- Open excavations can trap terrestrial fauna causing injury or death.
- Solid and liquid waste can be harmful to fauna if swallowed/ingested or if the creature becomes entangled or impaled.

Uncertainties & limitations with predicting this impact

- None.

Assumptions made when assessing the impact

- Fauna are highly mobile organisms, which can flee from dangers posed by construction activities. With the exception of smaller tunnelling, burrowing or nesting fauna (in the ground or tree trunks), fauna will instinctively flee, upon an intrusion of their personal space, specifically the 'flight' zone, until the animal has extended the distance to its 'comfort' zone.
- Sewer Collector Line No.s 1, 2 and 4 are located within the urban edge. A small area (40m x 4m) will be cleared for activities related to the construction of Sewer Collector Line No.3.
- No temporary access roads will be constructed.
- The construction camp will be located on a disturbed site.

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L	N	L	H	L	P	Negative
With	L	N	L		L	I	Neutral

Reference (legal, scientific, social or other criteria)

- None

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- With the exception of critically endangered species or populations, the loss of life can be recovered through the reproduction of surviving individuals/populations.

Mitigations

Goal: Control loss of terrestrial and avifauna

Objective(s) (including targets):

- To reduce harm to terrestrial and avifauna.

Impact 5 **Loss of terrestrial animals including mammals and birds directly through clearing, smothering, poaching, colliding, trampling, excavation, and littering**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	Contractor ECO	With the exception of search and rescue operations authorized by the ECO, no mammal, bird, reptile, invertebrate or fish shall be intentionally caught and/or killed.
Reduction	Contractor	Drivers shall adhere to the relevant speed limit(s) at all times and restrict their movements to the roadway or servitude.
Reduction	Contractor	The site will be kept tidy at all times. All waste shall be picked up daily.
Avoidance	Contractor	Designate a temporary waste storage area, enclose it in a fence that cannot be breached by fauna, and provide sufficient scavenger proof dust bins with black bags inside the construction camp.
Reduction	Contractor	Material stockpiles shall be located on a disturbed site or other site approved by the ECO.
Reduction	Contractor	Trenching up to 10m from the last pipe laid is to be covered and neatly finished off by the end of each day.
Reduction	Contractor	The end of the installed pipe shall be covered at the end of each day to prevent the entry of fallen fauna.
Reduction	Contractor	The working end of the trench must be finished off with a 30 degree angle at the close of each day.
Reduction	Contractor	Trenching may not exceed the working front by more than 10m.

Impact 6 Loss/gain of terrestrial plants directly through the clearing, smothering, trampling, and harvesting of plants

Description

- Clearing operations associated with sand mining, the establishment of the construction camp, the demarcation of the development footprint and the construction of temporary/permanent access roads will destroy plants.
- Construction activities, such as clearing, may extend beyond the development footprint, known as construction creep.
- Vegetation stockpiles, material stockpiles and lay down areas can be located in undisturbed areas, smothering living plants.
- Excessive traffic and dust can smother plants growing on the verge of gravel access roads.
- Concrete work, specifically mixing on bare ground can smother living plants and create a hard pan layer that prevents recovery.
- The movement of people, driving and parking of vehicles, and location of other construction equipment can trample plants.
- The immigration of contractors and labourers increases the risk of plants being harvested for firewood and/or traditional medicine.

Uncertainties & limitations with predicting this impact

- The number of immigrants (labourers) on to the construction site is unknown.

Assumptions made when assessing the impact

- Material will be imported from a commercial and licensed source. Sand mining will not occur locally.
- Sewer Collector Line No.s 1, 2 and 4 are located within the urban edge. A small area (40m x 4m) will be cleared for activities related to the construction of Sewer Collector Line No.3.
- The original state and function of the roads will be re-instated after construction.
- Dust is unlikely to impact plants because vehicular movement will be minimal.
- Grassed servitudes will be incorporated into the topsoil in the event of any clear and grub operations. There will be no vegetation stockpiles.
- No temporary access roads will be constructed.
- The construction camp will be on an existing disturbed site.

Assessment

Mitigation Action	**Spatial Scale/ Extent**	**Intensity**	**Duration**	**Mitigatory Potential (to meet objectives)**	**Social Acceptability**	**Probability of the Impact occurring**	**Status**
Without	L	L	L	H	L	P	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)
- None

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- The pipeline will be installed underground. Consequently, it will be possible to replace lost vegetation through appropriate rehabilitation measures. Temporary construction footprints such as access roads and the construction camp can also be rehabilitated. The rate of recovery will depend on the nature of the rehabilitation, prevailing weather conditions, and the diversity and density of local fauna/measures taken to protect the plants from browsers.

Mitigations
Goal: Control the loss of vegetation.
Objective(s) (including targets):
- To avoid the unnecessary destruction of flora resulting from construction activities.

Impact 6 **Loss of terrestrial plants directly through the clearing, smothering, harvesting, trampling and cutting of plants**		
Type of mitigation	**Responsible authority**	**Mitigation**
Avoidance	Contractor	The disturbed wetland system adjacent Sewer Collector Line No. 4 shall be designated as a no-go area and demarcated with danger tape or netting.
Avoidance	Contractor	The Contractors activities and movements shall be restricted to a 4m wide working servitude along the length of Sewer Collector Line No. 3.
Reduction	Contractor	The contractor may not dump any material onto living plants unless it is on a site that has been searched for plants of conservation concern by the ECO and approved as a stockpile or laydown area.
Avoidance	Contractor	Do not mix concrete on open ground. Mix in a wheel barrow, a mixing tray or on a level plastic sheet. Break up all hard pan layers.
Reduction	Contractor	All contractors and their labourers must be inducted before commencing work. The induction must include mitigations identified in this report (all aspects regarding their actual and potential interaction with the environment).
Avoidance	Contractor	No dry wood, living plant or part thereof may be harvested from any plant community.
Avoidance	Contractor	The movement of construction vehicles will be restricted to existing roads and certain demarcated areas (to turn around or passing lanes)

Impact 7 Replacement of terrestrial plants directly through the establishment of alien plant species

Description
- The disturbance created by clearing activities within plant communities creates favourable habitat for the life history strategies of undesirable plant species[1]. There is an ongoing threat for invasion because alien plants have effective dispersal mechanisms, such as birds. Cleared patches can become invaded and act as sources to colonize other vulnerable areas.
- Alien plants can also be introduced by importing foreign contaminated material for construction or rehabilitation.

Uncertainties & limitations with predicting this impact
- The magnitude of the impact, specifically the extent and severity of the potential replacement of natural vegetation, was not known.

Assumptions made when assessing the impact
- Material (soil) will be imported, but recently excavated subsoil should not introduce any foreign seeds, which are mostly found within the topsoil horizon.

Assessment

Mitigation Action	**Spatial Scale/ Extent**	**Intensity**	**Duration**	**Mitigatory Potential (to meet objectives)**	**Social Acceptability**	**Probability of the Impact occurring**	**Status**
Without	L	L	M	H	L	D	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)

1. Conservation of Agriculture Resources Act (Act 43 of 1983) as amended, and administered by the DALA.
    - Section 15A(1) of CARA, 1983, as amended: Category 1 plants may not occur on any land or inland water surface other than in biological control reserves.
    - Section 15A(2) of CARA, 1983, as amended: A land user shall control any category 1 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    - Section 15B(1) of CARA, 1983, as amended: Category 2 plants may not occur on any land or inland water surface other than a demarcated area or a biological control reserve.
    - Section 15B(8) of CARA, 1983, as amended: A land user shall control any category 2 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    - Section 15C(1) of CARA, 1983, as amended: Category 3 plants shall not occur on any land or inland water surface other than in a biological control reserve.
    - Section 15C(3)(a) of CARA, 1983, as amended: No land user shall allow category 3 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Reversibility is influenced by the extent and longevity of alien plant invasion. If controlled timeously the impact can be negligible. However, if allowed to grow unabated, alien invasive species can replace entire plant communities with homogeneous stands. Biodiversity is significantly reduced and ecosystem function is altered. In the later case, rehabilitation will require significant intervention and cost.

Mitigations

Goal: Control the replacement of indigenous vegetation.

Objective(s) (including targets):

- To prevent the maturation and reproduction of weed, invader and exotic plant species from occurring on any land that is disturbed during construction.

Impact 7 **Replacement of terrestrial plants directly through the establishment of alien plant species**		
Type of mitigation	**Responsible authority**	**Mitigation**
Reduction	Contractor	The contractor shall search for weed, invader and exotic plant species onall disturbed sites every two weeks during construction.
Rectification	Contractor	The contractor shall collect and destroy all seeds of weed, invader and alien plant species occurring within the servitude.
Rectification	Contractor	The contractor shall immediately remove weed, invader and exotic plant species upon being identified on all areas that are disturbed by construction activities including stockpiles.

Impact 8 Degradation

Description

The degradation of disturbed sites can result from erosion and plant replacement.

- Disturbed sites will comprise mostly cleared/denuded areas, including the pipeline servitudes.
- Disturbed areas are vulnerable to degradation, including erosion, leading to a loss of biodiversity and ecosystem functions and processes.
- Disturbed areas, including those recently rehabilitated by the contractor are susceptible to weed, invader and alien plant[3] recruitment and the replacement of indigenous plant communities if not controlled.
- Gravel roads are also sources of erosion if not maintained or managed because they channel uninterrupted flow.

Uncertainties & limitations with predicting this impact

- The magnitude of the impact, specifically the extent and severity of the erosion and sedimentation, was not known.
- The magnitude of the impact, specifically the extent of the invasion onto rehabilitated areas, was not known.

Assumptions made when assessing the impact

- The disturbance including areas that are vulnerable to alien plant invasion will be restricted to the pipeline servitudes. Disturbed areas will degrade if left alone.
- The Contractor will not construct temporary access roads so there will be no compacted areas.

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L	L	M	H	L	D	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)

1. The Principles of NEMA require that a proponent is responsible for any development s/he has initiated from the beginning to the end of the project ("From the cradle to the grave"). This responsibility is passed on from one title deed holder to the next. In line with this principle a rehabilitation plan has got to be drawn up to specify how the area will be rehabilitated once the project has ceased for whatever reason.
2. The condition of the existing servitude.
3. Conservation of Agriculture Resources Act (Act 43 of 1983) as amended, and administered by the DALA, including the following:
    - Section 15A(1) of CARA, 1983, as amended: Category 1 plants may not occur on any land or inland water surface other than in biological control reserves.
    - Section 15A(2) of CARA, 1983, as amended: A land user shall control any category 1 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    - Section 15B(1) of CARA, 1983, as amended: Category 2 plants may not occur on any land or inland water surface other than a demarcated area or a biological control reserve.
    - Section 15B(8) of CARA, 1983, as amended: A land user shall control any category 2 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    - Section 15C(1) of CARA, 1983, as amended: Category 3 plants shall not occur on any land or inland water surface other than in a biological control reserve.
    - Section 15C(3)(a) of CARA, 1983, as amended: No land user shall allow category 3 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Disturbed areas can be rehabilitated. The cost thereof will depend on the severity and extent of the degradation.
- The extent of reversibility is dependent on the severity of the erosion, including the nature of the remaining *in situ* material, the amount of soil that has been exported from a site and whether or not the exported soil is recoverable. For example, soil washed from a gravel road into a mitre drain can be graded back onto the surface of the road, whereas soil that is washed from a gully into a water course is not recoverable and the source cannot be re-instated without significant intervention and cost. Although erosion has the potential to irreversibly change the relief, eroded sites can be stabilized through rehabilitation measures.
- If controlled timeously the impact of alien plant species can be negligible. However, if allowed to grow unabated, alien invasive species can replace entire plant communities with homogeneous stands. Biodiversity is significantly reduced and ecosystem function is altered. In the later case, rehabilitation will require significant intervention and cost.

Mitigations

Goal:

Facilitate the natural rehabilitation of disturbed areas and control the replacement of indigenous vegetation by weed, invader and exotic plant species.

Objective(s) (including targets):

- To avoid long-term degradation.
- To reduce erosion of and rehabilitated access roads and the satellite camp.
- To prevent the maturation and reproduction of weed, invader and exotic plant species from occurring on any land that is rehabilitated after construction.

Impact 8**Degradation**		
Type of mitigation	**Responsible authority**	**Mitigation**
Rectification	Contractor	Bulk shape the areas where material is introduced to mimic or blend in with the surrounding, natural topography. Do not fine shape or rake because an uneven surface will impede surface water run-off and facilitate infiltration.
Reduction	Contractor	Ensure storm water run-off is adequately controlled on disturbed sites before rehabilitating them (ripping, replacing the topsoil and mulching/brush packing), i.e. cut-off berms.
Rectification	Contractor	Topsoil (150mm) shall be returned to the source areas during rehabilitation of the pipeline servitudes.
Rectification	Contractor	Ensure a quick and adequate cover with indigenous and local grass species on all pipeline servitudes.
Avoidance	Contractor	Kikuyu grass (*Pennisetum clandestinum*) is a highly invasive plant that threatens wetland habitats and must not be used in areas adjacent to wetland habitats and drainage lines. Non-invasive indigenous grasses such as *Cynodon dactylon* must be used.
Reduction	Contractor	The Contractor shall monitor the rehabilitated pipeline servitudes for the duration of the contract defects and liability period for signs of erosion.
Rectification	ELM Contractor	If erosion is found to occur during the aforesaid monitoring, the Contractor/ELM shall immediately correct (the 'source') and repair (the 'symptom') the erosion using method(s) that are an improvement on the mitigations proposed in this EMPr or on the unsuccessful mitigations originally used on site.
Reduction	Contractor ELM	The rehabilitated pipeline servitudes shall be monitored at least twice during the summer rainfall season for two years following the completion of the Sewer Collector Lines for the recruitment of weed, invader and alien plant species.
Rectification	Contractor ELM	The Contractor/ELM shall immediately uproot, cut or debark weed, invader and alien plant species upon being identified.
Rectification	Contractor ELM	The Contractor/ELM shall collect and destroy all seeds of weed, invader and alien plant species occurring within disturbed and/or rehabilitated areas.

Impact 9 Potential Social and Cultural Impacts

Description

- Heritage resources[1] may be disturbed during earthmoving activities[1].
- Construction may damage fences[2].
- Construction may necessitate the relocation of residents[2].
- Construction may occur without forewarning to residents[2].
- Open trenches are a danger to children playing in the streets[2].
- Construction may interfere with the supply of existing services, such as electricity[2].
- Construction activities including excavations and stockpiles may obstruct access by local residents[2].

Uncertainties & limitations with predicting this impact

- None

Assumptions made when assessing the impact

- Homes shall not be damaged or destroyed and residents shall not need to be relocated[3].
- The Applicant is not responsible for re-instating illegal electrical connections.
- It is unlikely that any significant impacts on heritage resources will result from the proposed development as the area has been previously disturbed.

Assessment

Mitigation Action	**Spatial Scale/ Extent**	**Intensity**	**Duration**	**Mitigatory Potential (to meet objectives)**	**Social Acceptability**	**Probability of the Impact occurring**	**Status**
Without	L	M	L	H	M	P	Negative
With	L	L	L		L	P-L	Neutral

Reference (legal, scientific, social or other criteria)

1. National Heritage Resources Act (No 25 of 1999).
2. Comments received from registered I&APs (Table 8).
3. Personal communication with Kehla Ngomane of ECA Consulting.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Heritage resources are irreplaceable.
- Human life is irreplaceable.
- Damaged property can be repaired.
- The cost of repair will depend on the extent and severity of the damage.

Mitigations

Goal: Address social concerns.

Objective(s) (including targets):

- To avoid loss off heritage without recording it.
- To reduce the safety hazard to residents.
- To conform to the local residents' needs.

Impact 10 **Potential Social and Cultural Impacts**		
Type of mitigation	**Responsible authority**	**Mitigation**
Reduction	Contractor	Include an awareness of heritage resources in the environmental induction. Categories of heritage resources include, *inter alia*: • Evidence of archaeological sites or remains include remnants of stone-made structures, indigenous ceramics, bones, stone artifacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations. • Archaeological or palaeontological sites over 100 years old, • Sites of cultural significance associated with oral histories, • Significant cultural landscapes or viewscapes, • Burial grounds, unmarked human burials, graves of victims of conflict, and/or graves older than 60 years, • Structures older than 60 years, • Fossils, etc.
Avoidance	ELM Contractor	All formal and informal cemeteries and burials must be left in situ and not be disturbed. If this is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999), and is subject to mandatory public consultation.
Avoidance	Contractor	In the event of discovering a heritage resource, stop reconstruction activities and alert the SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit immediately. Jenna Lavin, Heritage Officer (Tel: 021 462 4502, Fax: 021 462 4509, Email: jlavin@sahra.org.za).
Avoidance	Contractor	Contact a professional archaeologist or palaeontologist, depending on the nature of the finds, as soon as possible to inspect the findings.
Rectification	ELM	Any damage to a resident's property, including *inter alia*, fences shall be repaired or replaced at the expense of the ELM.
Avoidance	Contractor	The Contractor shall provide residents with at least 2 days forewarning prior to excavating immediately adjacent, on or inside their demarcated boundaries.
Reduction	Contractor	Trenching up to 10m from the last pipe laid is to be covered and neatly finished off by the end of each day.
Reduction	Contractor	Open trenches shall not occur in front of any access from 15h00 to 09h00 or on a Saturday, Sunday or public holiday, unless a temporary but safe access is provided over the trench.
Avoidance	Contractor	Material stockpiles shall not obstruct any access or through fare in respect of vehicles and pedestrians.
Reduction	Contractor	The end of the installed pipe shall be covered at the end of each day to prevent the entry of fallen fauna.
Reduction	Contractor	The working end of the trench must be finished off with a 30 degree angle at the close of each day.
Reduction	Contractor	Trenching may not exceed the working front by more than 10m.
Reduction	Contractor	All open trenches shall be demarcated on all sides with danger tape or netting.
Reduction	Contractor	The Contractor shall contact Eskom before commencing with any excavations to determine the presence and location of any underground

		electrical cables.
Reduction	Contractor	The Contractor shall contact Eskom in the event of discovering any illegal connections and request Eskom to make the area safe prior to commencing work in the affected area.

Operation Phase

Impact 1 Pollution, Health and Safety

Description
- A high water pressure in the collector lines can cause raw sewerage to flow from the manholes and down the streets creating a health risk to residents, odours and contamination of the environment.

Uncertainties & limitations with predicting this impact
- The magnitude of the impact, specifically the effects on ambient air quality, was not known.
- The magnitude of the impact, specifically the extent and severity of the soil and water pollution, was not known.
- The magnitude of the impact, specifically the health effects on residents, was not known.

Assumptions made when assessing the impact
- There is a risk of leaks from the newly constructed Sewer Collector Lines or overflow of raw sewerage from the manholes.
- The aforementioned risk results from a high water pressure in the collector lines. The water pressure can be reduced if residents use water wisely and no other water, such as storm water, enter the sewer network.

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	M	L	M	H	H	D	Negative
With	L	N	L		L	I	Negative

Reference (legal, scientific, social or other criteria)
1. National Environmental Management: Air Quality Act, 2004 (Act No. 39 0f 2004).
2. List of activities which result in atmospheric emissions. Government Notice No. 248 in Government Gazette No. 33064 of 31 March 2010.
3. The National Water Act (Act 36 0f 1998) is administered by the DWA.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources
- Air pollution contributes to a global concern called the greenhouse effect.
- The reversibility of soil and surface water pollution is dependent on the nature and extent of the pollution.

Mitigations
Goal: Control air, soil and water pollution
Objective(s) (including targets):
- To prevent prolonged foul-smelling odours from the sewage leaks.
- To prevent excessive sewerage from entering the environment.
- To prevent harm to residents.
- To reduce the risk of leaks, spills or overflows.

Impact 1**Pollution, Health and Safety**		
Type of mitigation	**Responsible authority**	**Mitigation**
Reduction	ELM	ELM should implement a community awareness initiative aimed at the residents of Hlalanikahle to save water by using it wisely (and thereby reduce peak flows through the collector lines).
Reduction	ELM	ELM should undertake a ground truthing investigation of its storm water infrastructure to determine if it feeds into the sewer network and, if found to occur, take measures to prevent the input of storm water into the collector lines and outfall sewer.
Reduction	ELM	ELM shall undertake regular safety inspections of the four sewer collector lines.
Reduction	ELM	ELM shall provide residents immediately adjacent the four new sewer collector lines with the local municipality's telephone number for their disaster management unit or other responsible department to rectify any raw sewerage leaks or overflow.
Reduction	ELM	ELM shall affect temporary and permanent emergency repairs or maintenance as soon as is practically possible.

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Reduction	ELM	ELM shall undertake maintenance, including repair, reconstruction or replacement, in respect of the four sewer collector lines according to the same mitigations described herein for the construction phase.

Impact 2 Degradation

Description
The degradation of disturbed sites can result from erosion and plant replacement.

- Disturbed sites will comprise mostly cleared/denuded areas, including the pipeline servitudes.
- Disturbed areas are vulnerable to degradation, including erosion, leading to a loss of biodiversity and ecosystem functions and processes.
- Disturbed areas, including those recently rehabilitated by the contractor are susceptible to weed, invader and alien plant[2] recruitment and the replacement of indigenous plant communities if not controlled.

Uncertainties & limitations with predicting this impact

- The magnitude of the impact, specifically the extent and severity of the erosion and sedimentation, was not known.
- The magnitude of the impact, specifically the extent of the invasion onto rehabilitated areas, was not known.

Assumptions made when assessing the impact

- The disturbance including areas that are vulnerable to alien plant invasion will be restricted to the pipeline servitudes. Disturbed areas will degrade if left alone.
- The Contractor will not construct temporary access roads so there will be no compacted areas.

Assessment

Mitigation Action	Spatial Scale/ Extent	Intensity	Duration	Mitigatory Potential (to meet objectives)	Social Acceptability	Probability of the Impact occurring	Status
Without	L	L	M	H	L	D	Negative
With	L	N	L		N	I	Neutral

Reference (legal, scientific, social or other criteria)

1. The Principles of NEMA require that a proponent is responsible for any development s/he has initiated from the beginning to the end of the project ("From the cradle to the grave"). This responsibility is passed on from one title deed holder to the next. In line with this principle a rehabilitation plan has got to be drawn up to specify how the area will be rehabilitated once the project has ceased for whatever reason.
4. Conservation of Agriculture Resources Act (Act 43 of 1983) as amended, and administered by the DALA, including the following:
    a. Section 15A(1) of CARA, 1983, as amended: Category 1 plants may not occur on any land or inland water surface other than in biological control reserves.
    b. Section 15A(2) of CARA, 1983, as amended: A land user shall control any category 1 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    c. Section 15B(1) of CARA, 1983, as amended: Category 2 plants may not occur on any land or inland water surface other than a demarcated area or a biological control reserve.
    d. Section 15B(8) of CARA, 1983, as amended: A land user shall control any category 2 plants that occur on any land or inland water surface in contravention of the provisions of sub-regulation (1) by means of the methods prescribed in regulation 15E.
    e. Section 15C(1) of CARA, 1983, as amended: Category 3 plants shall not occur on any land or inland water surface other than in a biological control reserve.
    f. Section 15C(3)(a) of CARA, 1983, as amended: No land user shall allow category 3 plants to occur within 30 meters of the 1:50 year flood line of a river, stream, spring, natural channel in which water flows regularly or intermittently, lake, dam or wetland.

Impact reversibility/The degree to which the impact may cause an irreplaceable loss of resources

- Disturbed areas can be rehabilitated. The cost thereof will depend on the severity and extent of the degradation.
- The extent of reversibility is dependent on the severity of the erosion, including the nature of the remaining *in situ* material, the amount of soil that has been exported from a site and whether or not

the exported soil is recoverable. For example, soil washed from a gravel road into a mitre drain can be graded back onto the surface of the road, whereas soil that is washed from a gully into a water course is not recoverable and the source cannot be re-instated without significant intervention and cost. Although erosion has the potential to irreversibly change the relief, eroded sites can be stabilized through rehabilitation measures.

- If controlled timeously the impact of alien plant species can be negligible. However, if allowed to grow unabated, alien invasive species can replace entire plant communities with homogeneous stands. Biodiversity is significantly reduced and ecosystem function is altered. In the later case, rehabilitation will require significant intervention and cost.

Mitigations

Goal:

Facilitate the natural rehabilitation of disturbed areas and control the replacement of indigenous vegetation by weed, invader and exotic plant species.

Objective(s) (including targets):

- To avoid long-term degradation.
- To reduce erosion of and rehabilitated access roads and the satellite camp.
- To prevent the maturation and reproduction of weed, invader and exotic plant species from occurring on any land that is rehabilitated after construction.

Impact 2 **Degradation**		
Type of mitigation	**Responsible authority**	**Mitigation**
Reduction	ELM	ELM shall monitor the rehabilitated pipeline servitudes for signs of erosion.
Rectification	ELM	If erosion is found to occur during the aforesaid monitoring, the ELM shall immediately correct (the 'source') and repair (the 'symptom') the erosion using method(s) that are an improvement on the mitigations proposed in this EMPr or on the unsuccessful mitigations originally used on site.
Reduction	ELM	The rehabilitated pipeline servitudes shall be monitored following the completion of the Sewer Collector Lines for the recruitment of weed, invader and alien plant species.
Rectification	ELM	ELM shall immediately uproot, cut or debark weed, invader and alien plant species upon being identified.
Rectification	ELM	ELM shall collect and destroy all seeds of weed, invader and alien plant species occurring within disturbed and/or rehabilitated areas.

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7. Environmental Management and Mitigation Measures

"any environmental management and mitigation measures proposed by the EAP;"
Regulation 22 (2) (j)

Refer to Section 6 for tables of management and mitigation measures.

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8. Specialist Inputs and Recommendations

"any inputs and recommendations made by specialists to the extent that may be necessary;"
Regulation 22 (2) (k)

The Department (MDEDET) did not identify the need for or inform the EAP of any specialist inputs and recommendations in respect of the proposed activity. The EAP did not foresee the need for specialist input given that the construction of the four new Sewer Collector Lines effectively involve the expansion of the network's capacity to collect sewerage in Hlalanikahle Township. With the exception of a 40m long collector line (Sewer Collector Line No. 3) in a disturbed wetland system, all other lines will be constructed alongside the streets or gravel access roads with the township.

Never the less, the sensitivity of the affected site and surrounding environment was assessed by determining whether the proposed pipelines are located within geographical areas identified in terms of GN. No. R. 546, 08th August, 2010.

Hlalanikahle including the immediate environ is either in or nearby a threatened ecosystem, known as the Eastern Highveld Grassland, which is listed as vulnerable (SANBI & DEAT 2009). The open areas to the north and east of Hlalanikahle are designated as threatened ecosystems, but they are categorized as vulnerable or of least concern at the local and provincial levels, respectively (**Appendix D-A: Site Sensitivity Plan**).

Emalahleni Local Municipality does contain Eastern Temperate Freshwater Wetlands, which are also identified as vulnerable ecosystems (SANBI & DEAT 2009). These wetlands are located around water bodies with stagnant water (lakes, pans, periodically flooded vleis, edges of calmly flowing rivers) and embedded within the grassland biome (SANBI & DEAT 2009). The latter are located in flat landscapes or shallow depressions filled with (temporary) water bodies supporting zoned systems of aquatic and hygrophilous vegetation of temporarily flooded grasslands and ephemeral herblands (SANBI & DEAT 2009). National data provided by Mervyn Lotter of the MTPA reveals National Fresh Water Ecosystem Priority Areas (NFEPA) along the eastern boundary of the township, but and with the exception of the end portion of Sewer Collector Line No. 1, the proposed pipelines are located outside the 100m buffer from the edge of the said watercourse **(Appendix D-A: Site Sensitivity Plan**).

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9. Draft Environmental Management Programme

"a draft environmental management programme containing the aspects contemplated in regulation 33" Regulation 22 (2) (l)

Background

Ecoleges has compiled a Generic Environmental Management Programme to ensure responsible environmental management and overcome common failures or criticisms in conventional EMPrs, including:

- Redundancy

Mitigations are often repeated under different sections/aspects/impacts or activities throughout conventional EMPrs. For example, several repeated or similar mitigations regarding erosion may be triggered by one finding. This redundancy introduces a bias when scoring compliance in the audit, which effectively 'inflates' the level and perception of non-compliance. Redundancy is overcome by avoiding repetition and avoiding similarly written conditions.

- Generic mitigations

EAPs have gotten into the unfortunate and lazy habit of prescribing generic conditions regarding compliance with relevant legislation, instead of researching the legal requirements and providing specific 'guidance.' Contractors, SECOs and ECOs do not always know the specific legal requirements, resulting in poor enforcement.

- 'Should' versus 'Shall'

'Should' is a recommendation, whilst 'shall' is an obligation. 'Should's are not enforceable and cannot be scored in a compliance audit. Consequently, 'should's must not be used in mitigations that are singly meant to avoid or reduce specific impacts.

- Too prescriptive

Some mitigations identify specific methodologies or apparatus, which cannot be reasonably or feasibly implemented and subsequently requires an amendment to the EMPr. Amendments can be costly and timely. Mitigations need to be concise, and contain sufficient detail to effectively avoid or reduce a negative impact without limiting better alternatives/options.

- Too long

EMPrs have been criticized for being too long and arduous, thereby deterring potential readers. Ecoleges attempts to keep the mitigations within 10 pages, unless projects contains realms of conditions from I&APs, such as land owners and servitude holders (wayleaves).

- Insufficient Information

Information from I&APs is often transferred into the EMPrs without providing a means for ensuring its implementation, thereby reducing its efficacy. A concerted effort has been made to include contact persons and details in the relevant mitigations that require communication with I&APs.

The aforementioned programme formed the basis of this EMPr and was 'tailored' to include mitigations for site-specific impacts identified during the assessment process, the specialists inputs and recommendations, Regulation 33 of the EIA Regulations, 2010 and Section 24N of NEMA, 1998. Where necessary, measures were expanded upon and additional issues have been addressed in order to ensure that all environmental aspects are appropriately considered and monitored.

Environmental, social and economical conditions change, including *inter alia*, legislative requirements. Consequently, environmental management needs to be adaptiveand the EMPrmust be treated as a dynamic document. However, considering that the EMPr is a Standard, as opposed to a Guideline

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document, changes must be submitted to the environmental authorities for approval using their template. We further prescribe that proposed changes are motivated and consider the impacts which particular conditions were meant to mitigate (in this EIA), to reduce the significance thereof.

The approved EMPr shall be printed, completed and kept in an on-site file designated for all matters pertaining to environmental management. Co-operation is required between the applicant, contractor, and ECO to ensure that activities are managed in an amicable and responsible manner and in accordance with the philosophies of environmental legislation and principles of the EMPr.

Purpose and Scope

Ecoleges recognises the following types of Environmental Management Programmes (EMPr) according to the phases of implementation for which they are designed:

- **Lifespan EMPr (Planning and Design, Pre-construction, Construction, Post-construction, Operation (including maintenance) and Decommission)**
- Construction EMPr (Planning and Design, Pre-construction, Construction and Post-construction)
- Maintenance (for Reconstruction) EMPr (Planning and Design, and Operation (including maintenance))
- Maintenance (for Rehabilitation) EMPr (Planning and Design, Operation (including maintenance) and Decommission)

The main purpose of this LifespanEMPr is to ensure the sustainable management of the activities and the resulting environment impacts associated with the listed and physical activities.

This EMPr will apply to the scope (**Table 11**) implicit within listed activitiesand is restricted exclusively to theconstruction and maintenance of the four new sewer collector lines that form part of the Hlalanikahle Sewer Network.

Table 11: The scope of this EMPr in respect of the potential listed activities identified in **Table 4**.

SCOPE	Geographical Location/Extent	Duration	Organisational Structure	Activities
LA11 of LN1 and/or LA16 of LN3, and LA18 of LN1	Within 32m from a watercourse	During construction and operation including maintenance of the activity.	The Applicant	Construction covering $10m^2/50m^2$ or more. Excavating> $5m^3$ of soil.
EMPr	The disturbed wetland system identified by DWA and impacted by Sewer Collector Lines No. 3 and 4 (and Lines 1 and 2 in respect of the NFEPA wetland called the 'Brug').	Planning and Design, Pre-construction, Construction, Post-construction, Operation (including maintenance) Phase (10 years).	Responsibilities include the Applicant, Engineer and Contractor.	Same as the above plus other associated activities.

It may not be assumed to apply to any other location without approval from the lead authority. Decommissioning was excluded from the scope of this EMPr, which is applicable to the Planning, Construction and Operation phases of implementation only.This EMPr is valid for a period of 10 years, whereupon its applicability will need to be reassessed.

Responsibilities of Role Players

This EMPris compiled for the management of operations associated with the unlawful commencement and continuation of three dams and associated infrastructure. The Planning and Construction Phases are complete. Consequently, not all role players describe below will apply to the Operational Phase.

Applicant

The applicant remains ultimately responsible for ensuring that the development is implemented according to the requirements of the EMPr. Although the applicant delegates specific responsibilities to role players to perform functions on his/her behalf, the ultimate responsibility cannot be delegated. The developer is responsible for ensuring that sufficient resources (time, financial, man-power, equipment, etc.) are available to the other role players (e.g. the contractor, SECO, etc) to efficiently perform their tasks in terms of the EMPr. The responsibility of restoring the environment in the event of any negligence, which leads to damage of the environment, also falls to the applicant.

The applicant must ensure that the EMPr is included in any documents (tender, appointment etc.) so that any contractor who is appointed is bound to the conditions of the EMPr. The applicant must appoint an independent Environmental Control Officer (ECO) during the planning phase to oversee all the environmental aspects relating to the development.

Contractor

The contractor, as the developer's agent on site, is bound to the EMPr conditions through his/her contract with the developer, and is responsible for ensuring that she/he adheres to all the conditions of the EMPr. The contractor shall be responsible for the actions undertaken by all their employees including sub-contractors. The contractor must thoroughly familiarise him/herself with the EMPr requirements before coming onto site and must request clarification on any aspect of these documents, should they be unclear. The contractor must ensure that he/she has provided sufficient budget for complying with all EMPr conditions at the tender/appointment stage.

The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site engineer in terms of the EMPr.

Site Environmental Control Officer (SECO)

The Site Environmental Control Officer (SECO) shall be appointed by the contractor to implement the EMPr daily.

Environmental Control Officer (ECO)

The Environmental Control Officer (ECO) is appointed by the applicant as an independent monitor of the implementation of the EMPr. He/she must form part of the project team and be involved in all aspects of the project planning that can influence environmental conditions on the site.

The ECO must attend relevant project meetings, conduct inspections to assess compliance with the EMPr and be responsible for providing feedback on potential environmental problems associated with the development. In addition, the ECO is responsible for:

- **Liaising with relevant authorities;**
- **Liaising with contractors regarding environmental management; and**
- **Undertaking routine monitoring and appointing a competent person/institution to be responsible for any specialist monitoring (if required).**

The ECO has the right to enter the site and undertake monitoring and auditing at any time, subject to compliance with health and safety requirements applicable to the site (wearing safety boots, head gear, mouth mask etc.).

Communication

At least monthly site meetings should be held where feedback can be given and any potential problems identified and remedied. If they cannot be remedied then construction in that area should be stopped, until a suitable remedy is identified.

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Monitoring Compliance

Pre-construction, Construction and Post-construction

The ECO will be responsible for monitoring and auditing the activity from pre- to post-construction.

Audits shall be a systematic, independent and documented process for obtaining audit evidence and evaluating it objectively to determine the extent to which the audit criteria are fulfilled. The audit criteria (or reference) against which the audit evidence is compared shall include this EMPr and the Environmental Authorisation.

The ECO must undertake bi-weekly inspections of the site and submit monthly environmental compliance reports and audits to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET), unless otherwise prescribed in the EA. The compliance reports must identify the actual and potential transgressions, describe the impacts, provide verifiable evidence (photographs, records or statements) and recommend corrective and preventive actions (including completion dates). The compliance audits must measure the applicant/contractor's level of compliance against the aforesaid audit criteria. Performance auditing is optional.

The SECO shall maintain an on-site diary to record environmental aspects (elements of the construction activities that can interact with the environment) and environmental impacts (any change to the environment, whether adverse or beneficial, wholly or partially resulting construction activities), daily.

Operation

The relevant authoritiesshould be responsible for monitoring compliance with aspects of the activity that fall within their jurisdiction.

Time Periods and Failure to Comply with the EMPr

The time periods within which the measures prescribed in this EMPr must be implemented shall be applicable to the full duration of the activity that is being undertaken and mitigated. The time periods within which corrective and preventive actions need to be implemented shall be determined by the SECO and/or ECO, depending on the nature and severity of the finding. In the absence of a prescribed deadline or completion date, findings shall be corrected or prevented immediately upon being found to occur, if practical.

The EMPr is a legally binding document and should form part of the contract. Should there be failure to comply with the EMPr the following steps are envisaged:

Step 1

The ECO meets with the contractor and points out the deviation from the EMPr. The ECO and Contractor agree on a solution and this non-compliance is recorded by the ECO as well as the solution put forward to rectify it.

Step 2

Should there still be non compliance or there is a more serious infringement of the EMPr the contractor is informed in writing with a deadline by which the problem must be rectified. Any extra costs that may be accrued must be borne by the contractor.

Step 3

If non compliance persists, the ECO shall order the contractor to suspend construction in that specific area or the project as a whole until the activity at variance with the EMPr is corrected and or remedial actions taken. Any cost that occurs as a result of such action shall be for the account of the contractor.

Step4

Where there is non-compliance with the EMPr and no evidence that the contractor intends complying even though the above 3 steps have been taken the proponent may terminate the contract due to non-compliance (breach of contract). Such measures do not replace any legal proceedings that may occur as a result of such non-compliance.

Environmental Awareness Plan

The applicant shall ensure that his project team, contractor and labourers are adequately trained with regard to the implementation of the EMPr and EA throughout construction.

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Pre-construction

Environmental Awareness Inductions shall be targeted at two distinct levels of employment: management (applicant, architect, engineer, contractor/site agent) and labourers (including the site foreman). The ECO shall be responsible for preparing and presenting inductions appropriate to the audience. Inductions shall be undertaken prior to the commencement of construction. Where possible the presentation will be conducted in the language of the employees.

The Environmental induction for management shall include mitigations that are relevant to or require management's involvement prior to implementation including, but not limited to, the following:

- Measures required during the Planning and Design, and Pre-construction phase, and
- Site establishment.

The Environmental induction for the contractor's labourers and foreman shall, as a minimum, include the following:

- A description of the actual and potential environmental impacts,
- Standard operating procedures for undertaking construction activities (i.e. mixing concrete, driving, etc.) that can have an environmental impact,
- Staff conduct including sanitation and movement,
- The integrated waste management strategy,
- The steps to be taken should any item of perceived environmental importance including archaeological artefacts be located or unearthed, and
- The environmental emergency plan.

Construction

The SECO and ECO shall undertake an informal training needs analysis throughout construction to identify appropriate environmental topics and the appropriate labourers to target. The analysis shall be informed by the findings contained in the site diary and compliance reports. Training shall be given during toolbox talks.

The SECO and ECO shall keep records of the environmental inductions and subsequent toolbox talks in an on-site file designated for all matters pertaining to environmental management.

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Environmental Management Programme – Information Sheet

Name of Development

(General name given to the development / construction)

Description of Activity

(Brief description of what the project entails)

This EMPr pertains to the ...

Details of Proponent

(Name and address of the proponent)

Project applicant:			
Contact person:			
Physical address:			
Postal address:			
Postal code:			
Telephone:			
E-mail:			

Planned Implementation Date

(Date construction is expected to start)

Expected Completion Date

(Date construction is expected to end)

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Declaration

I the undersigned in my capacity as designated below, do hereby undertake to ensure that the conditions and recommendations in terms of the Environmental Management Programme (EMPr) relating to the following project (name of project)

.....

are implemented in terms of the recommended activities and procedures. I assume accountability and responsibility in this respect.

I am aware that the appointed ECO may visit the project at any stage to ensure compliance with the approved EMPr, its activities and procedures.

Proponent

Name _____

Signature _____

Date _____

*Contractor

Name _____

Signature _____

Date _____

Environmental Control Officer (ECO)

Name _____

Signature _____

Date _____

* This declaration of the Main Contractor is binding on any sub-contractors / agents that may be employed by the Main Contractor in execution of his contract. It is the responsibility of the Main Contractor to ensure any sub-contractors are aware of this declaration and abide by it.

List of Terminology and Abbreviations

The following is a list of abbreviations and terminology that has been used in this report.

Construction	The period of the project that encompasses site hand over, site establishment and preparation, carrying out the works, and decommissioning.
DAFF	Department of Agriculture, Forestry and Fisheries
DEA	Department of Environmental Affairs
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
ECA	Environmental Conservation Act
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
ELM	Emalahleni Local Municipality
EMPr	Environmental Management Programme – A plan that is designed and implemented to achieve specific goals in such a way that the expected impacts that a proposed project is going to have on the environment are mitigated, controlled and monitored
Fauna	All animals life as opposed to Vegetable and Mineral
Flora	All plant life
HIA	Heritage Impact Assessment
I&AP's	Interested and Affected Parties
Mitigation	Practical measures that are put forward to avoid or reduce the expected impact a certain action or development is expected to have on the environment
MTPA	Mpumalanga Tourism and Parks Agency
NEMA	National Environmental Management Act
NEMBA	National Environmental Management: Biodiversity Act
NEMPAA	National Environmental Management: Protected Areas Act
NEMWA	National Environmental Management: Waste Act
NHRA	National Heritage Resources Act
NDM	Nkangala District Municipality
Post-construction	The period after construction has been completed and when the maintenance period begins
Pre-construction	The period leading up to when construction begins
Red Data Species	Species of fauna and flora that have been listed as Extremely Endangered, Endangered or Threatened according to the IUCN conservation categories
Rehabilitation	Actions that are required to achieve rigorous and sustainable environmental conditions on a site after construction is completed.
ROD	Record of Decision
SECO	Site Environmental Control Officer
SAHRA	South African Heritage Resources Agency

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Mitigations

Planning and Design Phase Mitigations

Planning and Design Phase			
No.	**Activities and Impacts**	**Responsibility**	**Mitigation**
1.1	**1. Authorisations** • Potential offences incl. non-compliance and non-conformance	NDM/ELM	An experienced and independent ECO shall be appointed prior to the commencement of construction to oversee construction, including the identification and permitting/licensing of protected plants prior to clearing.
1.2		ELM Contractor	Should water be required for construction activities relating to the pipelines and if the contractor needs to purchase irrigation water from a land owner, a temporary transfer of allocation must be obtained from the DWA before construction commences.
1.3		Contractor	Should the Contractor require water for construction activities from the existing network, approval for temporary, metered connection points shall be sought from the ELM.
1.4		ELM ECO	ELM shall apply for and obtain the relevant licenses/permits from the appropriate authorities (MTPA, DAFF, and/or DEA) prior to disturbing or destroying any protected plants.
1.5		ELM EAP	ELM shall apply for and obtain a GA before commencing with construction of the four sewer collector lines.
1.6		Contractor	The contractor shall obtain imported material from a licensed, commercial borrow pit.
1.7		ELM Engineer	The Engineer shall apply, on behalf of ELM, for a wayleave(s) from Eskom (Vuledzani Thanyani, 011 800 5601 or 073 763 6629 thanyav@eskom.co.za), before commencing construction of Sewer Collector Line No. 4 through the relevant servitude(s); Duvha-Kendal 400kV and Duvha-Apollo 400kV.

Construction Phase Mitigations

Pre-construction Planning Phase			
No.	**Activities and Impacts**	**Responsibility**	**Mitigation**
2.1	**2. Authorisations** • Potential offences incl. non-compliance and non-conformance	Applicant/Contractor	Protected Plants may not be disturbed, cut or destroyed without the relevant licenses/permits from the appropriate authorities (MTPA, DAFF, and/or DEA).
2.2		Contractor	The Contractor shall not import material from an illegal source.
2.3		Contractor	The Contractor shall not commence construction of Sewer Collector Line No. 4 where it intersects Eskom's servitude without a wayleave from Eskom.
3.1	**3. Taking Water** Potential offences incl. non-compliance and non-conformance	Contractor	The Contractor may not use irrigation water for construction without a temporary transfer of allocation.
3.2		Contractor	The Contractor shall not create temporary connection points from the existing network without the approval of ELM.
3.3		Contractor	Temporary connection points shall be metered.
4.1	**4. Demarcation** • Potential offences incl. non-compliance and non-conformance	Contractor	The disturbed wetland system adjacent Sewer Collector Line No. 4 shall be designated as a no-go area and demarcated with danger tape or netting.
4.2		Contractor	The Contractor shall contact Eskom before commencing with any excavations to determine the presence and location of any underground electrical cables.
5.1	**5. Location and Layout of Construction Camp(s)** • Soil Pollution • Water Pollution • Loss of Fauna and Flora	Contractor	The Contractor shall locate the construction camp on existing disturbed or the least sensitive sites above the 1:100 year flood line or further than 32m from the edge of a watercourse, whichever is greatest.
5.2		Contractor	The contractor shall restrict the following activities to the construction camp: Accommodation, Sanitation, Waste storage, Parking, Storing hazardous materials, Repair/maintenance Re-fuelling, Bulk concrete batching, Material stockpiles, and Lay down areas.

Construction Phase			
No.	**Activities and Impacts**	**Responsibility**	**Mitigation**
6.1	**6. Management of Staff** • Air Pollution • Soil Pollution • Water Pollution • Loss of Fauna • Loss of Flora • Loss of Heritage	Contractor	All contractors and their labourers must be inducted before commencing work. The induction must include mitigations identified in this report (all aspects regarding their actual and potential interaction with the environment).
6.2		Contractor	Induct all labourers on the waste management strategy and enforce it through regular (at least weekly) toolbox talks.
6.3		Contractor	Include an awareness of heritage resources in the environmental induction. Categories of heritage resources include, *inter alia*: • Evidence of archaeological sites or remains include remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, marine shell and charcoal/ash concentrations. • Archaeological or palaeontological sites over 100 years old, • Sites of cultural significance associated with oral histories, • Significant cultural landscapes or viewscapes, • Burial grounds, unmarked human burials, graves of victims of conflict, and/or graves older than 60 years, • Structures older than 60 years, • Fossils, etc.
6.4		ELM Contractor	All formal and informal cemeteries and burials must be left in situ and not be disturbed. If this is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999), and is subject to mandatory public consultation.
6.5		Contractor	In the event of discovering a heritage resource, stop reconstruction activities and alert the SAHRA Archaeology, Palaeontology and Meteorites (APM) Unit immediately.Jenna Lavin, Heritage Officer (Tel: 021 462 4502, Fax: 021 462 4509, Email: jlavin@sahra.org.za).
6.6		Contractor	Contact a professional archaeologist or palaeontologist, depending on the nature of the finds, as soon as possible to inspect the findings.
6.7		**Contractor**	Unnecessarily loud noise is prohibited.
6.8		Contractor	Open fires are prohibited. Controlled fire within the construction camp for cooking is permissible.
6.9		Contractor	All persons shall use only the provided facilities for sanitation.
6.10		Contractor	With the exception of search and rescue operations authorized by the ECO, no mammal, bird, reptile, invertebrate or fish shall be intentionally caught, harmed and/or killed.
6.11		Contractor	No dry wood, living plant or part thereof may be harvested from any plant community.
7.1	**7. Management of Services/Infrastructure** • Social	ELM	Any damage to a resident's property, including *inter alia*, fences shall be repaired or replaced at the expense of the ELM.
7.2		Contractor	The Contractor shall comply with Eskom's Wayleave requirements.
7.3		Contractor	The Contractor shall contact Eskom in the event of discovering any illegal connections and request Eskom to make the area safe prior to commencing work in the affected area.
8.1	**8. Management of Construction Plant**	Contractor Engineer	Construction vehicles and equipment are prohibited from entering the disturbed wetland system, with the exception of temporary passing lanes approved by the Engineer

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8.2	**& Equipment** • Air Pollution • Loss of Water • Soil Pollution • Water Pollution • Loss of Soil	Contractor	The movement of construction vehicles will be restricted to permanent or temporary roads and certain demarcated areas (to turn around or passing lanes).
8.3		Contractor	Drivers shall adhere to the relevant speed limit(s) at all times and restrict their movements to the roadway or servitude.
8.4		**Contractor**	Construction plant and equipment shall be kept in good working order to reduce hydrocarbon leakages, excessive emissions.
8.5		Contractor	Washing of construction plant and mechanical equipment including brushes shall not occur on site or in a watercourse, but shall be restricted to the main construction camp.
8.6		Contractor	Use drip trays for refuelling, repair/maintenance work and all stationary construction plant and equipment that can leak, such as TLBs, compressors and generators.
8.7		Contractor	Sand or soil is prohibited from being used as an adsorbant in drip trays, bunds or to cover spills.
8.8		Contractor	Emergency repairs or maintenance shall include procedures to minimize contamination of the ground.
9.1	**9. Management of Hazardous Material** • Air Pollution • Loss of Water • Soil Pollution • Water Pollution • Loss of Soil	Contractor	The contractor shall store hazardous material within a secure, safe and bunded facility at the construction camp.
9.2		Contractor	Re-fuelling with a mobile fuel bowser shall take place outside any watercourse.
9.3		Contractor	The contractor shall implement appropriate procedures, such as the use of a ground cover, to prevent the contamination of the ground when handling hazardous materials, including re-fuelling.
9.4		Contractor	As far as is practical do not handle cement during excessively windy conditions.
9.5		Contractor	Do not mix concrete on open ground. Mix in a wheel barrow, a mixing tray or on a level plastic sheet.
9.6		Contractor	The contractor shall prevent the run-off of slurry or cement contaminated water from concrete/plaster mixing sites.
10.1	**10. Management of Imported Material** • Loss of Soil • Air Pollution • Water Pollution • Loss of Flora & Fauna	Contractor	The Contractor shall obtain imported material from a licensed, commercial source.
10.2		Contractor	Trucks transporting material to site shall be covered.
10.3		Contractor	Do not handle material during excessively windy conditions.
10.4		Contractor	Imported material stockpiles shall be located outside the demarcated disturbed wetland system and on a disturbed site or other site approved by the ECO as a stockpile area.
		Contractor	The contractor may not dump any material onto living plants unless it is on a site that has been searched for plants of conservation concern by the ECO and approved as a stockpile or laydown area.
10.5		Contractor	If possible, do not stockpile the imported material, but use it immediately.
11.1	**11. Management of Topsoil** • Loss of Soil • Soil Pollution	Contractor	Topsoil shall be windrowed separately from the subsoil and opposite the working side of the trench.
11.2		Contractor	Topsoil stockpiles shall be located further than 32m from the edge of the watercourse and on a disturbed site or other site approved by the ECO as a stockpile or laydown area.
11.3		Contractor	The Contractor is prohibited from driving on topsoil stockpiles and windrows.
11.4		Contractor	Topsoil shall not be mixed with cement. It is to be used for rehabilitation only.
11.5		Contractor	Remove topsoil from the area within the perimeter of the construction camp and stockpile separately for use during rehabilitation of the site.
12.1	**12. Management of Excavations** • Loss of Soil	Contractor	Trenching may not exceed the working front by more than 10m.
12.2		Contractor	All open trenches shall be demarcated on all sides with danger tape or netting.
12.3		Contractor	Trenching up to 10m from the last pipe laid is to be covered and neatly finished off by the end of each day.

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12.4	• Water Pollution	Contractor	The end of the installed pipe shall be covered at the end of each day to prevent the entry of fallen fauna.
12.5		Contractor	The working end of the trench must be finished off with a 30 degree angle at the close of each day.
13.1	**13. Management of Building Activities in a watercourse** • Water Pollution	Contractor	The Contractors activities and movements shall be restricted to a 4m wide working servitude along the length of Sewer Collector Line No. 3.
13.2		Contractor	The trench for Sewer Collector Line No. 3 shall be excavated by hand.
14.1	**14. Management of Sanitation** • Air Pollution • Soil Pollution • Water Pollution • Loss of Fauna and Flora	Contractor	The contractor shall provide sufficient (1:10) chemical toilets.
14.2		Contractor	Use chemical toilets that contain the sewerage in a closed and removable 'tank', i.e. do not use open drums. Environmentally friendly toilets should also be considered e.g. E-loo's.
14.3		Contractor	Chemical toilets shall be located in the shade and outside the demarcated disturbed wetland system.
14.4		Contractor	Chemical toilets shall be kept hygienic and cleaned daily.
14.5		Contractor	Chemical toilets shall be emptied when the tanks are half full.
15.1	**15. Management of Waste** • Soil Pollution • Water Pollution • Air Pollution • Loss of Fauna and Flora • Loss of Soil	Contractor	Establish and implement an Integrated Waste Management Strategy including avoidance, reduction, re-using, recycling and disposal, i.e. the production of hazardous waste can be avoided by providing drip trays, reduce waste by using the correct quantities, re-use concrete rubble as back fill or recycle steel off-cuts and dispose of non-hazardous solid waste at a registered municipal dump site.
15.2		Contractor	Designate a temporary waste storage area, enclose it in a fence that cannot be breached by fauna, and provide sufficient scavenger proof dust bins with black bags inside the construction camp.
15.3		Contractor	Separate general, recyclable, natural (vegetation and soil/rock) and hazardous waste, and demarcate different containers for different waste types using colour codes.
15.4		Contractor	Do not litter, burn or bury waste on any property.
15.5		Contractor	The contractor shall dispose of general waste at a registered municipal dump site.
15.6		Contractor	The contractor shall contain contaminated water from washing brushes in a conservancy tank until sufficient volume warrants disposal by a registered hazardous waste management company.
15.7		Contractor	The contractor is prohibited from discharging waste water, including domestic water from sanitation facilities, and grey water from washing equipment or plant into a watercourse.
15.8		Contractor	Remove ineffective danger tape/netting that has begun to litter the site or surrounding areas.
15.9		Contractor	Immediately remove contaminated soil to the depth of penetration and temporarily store in a designated solid hazardous waste container until sufficient volume warrants disposal at a registered hazardous waste dump site. Alternatively, onsite treatment of contaminated soil should be considered with a registered hazardous waste management company.
15.10		Contractor	Spills shall not be covered with sand or soil. It merely increases the disposal cost for a greater volume of hazardous waste.
15.11		Contractor	Break up all concrete hard pan layers and dispose of appropriately (at a legitimate dump site) or re-use the concrete.
15.12		Contractor	All waste bins shall have lids.
15.13		Contractor	The site will be kept tidy at all times. All waste shall be picked up daily.

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15.14		Contractor	The contractor shall return used oil to the supplier or an oil recycling company.
15.15		ELM	ELM shall remove the illegal waste dump on the proposed route for Sewer Collector Line No. 1 to a licensed landfill site.
15.16		Contractor	A dustbin shall be available at each work front during working hours.
16.1	**16. Management of Water** • Loss of Water	Contractor	Water leaks shall be repaired immediately upon being found.
16.2		Contractor	Water shall be used sparingly to prevent excessive run-off when wetting the road works/layers.
16.3		Contractor	Water taps shall be closed when not in use.
16.4		Contractor	The Contractor shall not water gravel access roads.
17.1	**17. Management of Time** • Loss of Soil • Soil Pollution • Water Pollution • Air Pollution • Loss of Fauna and Flora	Contractor	As far as possible, commence construction (clearing) at the onset of the dry season in order to prevent erosion, siltation and wash-away of topsoil and sedimentation into the wetlands, seepage areas, drainage lines or rivers.
17.2		Contractor	The Contractor shall provide residents with at least 2 days forewarning prior to excavating immediately adjacent, on or inside their demarcated boundaries.
17.3		Contractor	Construction shall be limited to daylight hours.
17.4		Contractor	Trenches may not be open for more than 24hrs.
17.5		Contractor	Open trenches shall not occur in front of any access from 15h00 to 09h00 or on a Saturday, Sunday or public holiday, unless a temporary but safe access is provided over the trench.
18.1	**18. Management of Weed, Invader and Alien Plants** • Loss, transformation and fragmentation of terrestrial habitats	Contractor	The contractor shall search for weed, invader and alien plant species on all disturbed sites every two weeks during construction.
18.2		Contractor	The contractor shall immediately remove weed, invader and alien plant species upon being identified on all areas that are disturbed by construction activities including stockpiles.
18.3		Contractor	The contractor shall collect and destroy all seeds of weed, invader and alien plant species occurring within the servitude during construction.
19.1	**19. Management of Erosion** • Loss of Soil • Water Pollution	Contractor	Protect all areas susceptible to erosion by installing all the necessary, temporary and/or permanent mechanisms for controlling/diverting storm water run-off, dissipating water energy and encouraging infiltration as soon as possible.
19.2		Contractor	Correct any cause of erosion at the onset thereof by controlling/diverting storm water run-off, immediately repairing and stabilising/rehabilitating impacted areas in the most appropriate manner.
19.3		Contractor	Contain surface water run-off and loose sediment within excavations.
19.4		Contractor	Appropriate mitigation to control/reduce sediment input into watercourses shall be implemented during construction.
20.1	**20. Rehabilitation& Monitoring** • Soil Pollution • Water Pollution • Loss of Flora • Loss of Heritage	Contractor	Bulk shape the areas where material is introduced to mimic or blend in with the surrounding, natural topography. Do not fine shape or rake because an uneven surface will impede surface water run-off and facilitate infiltration.
20.2		Contractor	Ensure storm water run-off is adequately controlled on disturbed sites before rehabilitating them (ripping, replacing the topsoil and mulching/brush packing), i.e. cut-off berms.
20.3		Contractor	Topsoil (150mm) shall be returned to the source areas during rehabilitation of the disturbed sites.
20.4		Contractor	Ensure a quick and adequate cover with indigenous and local grass species on all pipeline servitudes.
20.5		Contractor	Kikuyu grass (*Pennisetumclandestinum*) is a highly invasive plant that threatens wetland habitats and must not be

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			used in areas adjacent to wetland habitats and drainage lines. Non-invasive indigenous grasses such as *Cynodondactylon* should be used.
20.6		Contractor	The Contractor shall monitor the rehabilitated pipeline servitudes for the duration of the contract defects and liability period for signs of erosion.
20.7		ELM Contractor	If erosion is found to occur during the aforesaid monitoring, the Contractor/ELM shall immediately correct (the 'source') and repair (the 'symptom') the erosion using method(s) that are an improvement on the mitigations proposed in this EMPr or on the unsuccessful mitigations originally used on site.
20.8		Contractor	The Contractor shall monitor the rehabilitated pipeline servitudes for the duration of the contract defects and liability period for the recruitment of weed, invader and alien plant species.
20.9		Contractor ELM	The Contractor/ELM shall immediately uproot, cut or debark weed, invader and alien plant species upon being identified.
20.10		Contractor ELM	The Contractor/ELM shall collect and destroy all seeds of weed, invader and alien plant species occurring within disturbed and/or rehabilitated areas.

Operation and Maintenance Phase Mitigations

Operation and Maintenance Phase			
No.	**Activities and Impacts**	**Responsibility**	**Mitigation**
1.1	**1. Monitoring & Maintenance** • Pollution, • Social (Health and Safety) • Loss of soil (Erosion), • Plant replacement (by Undesirable Plants)	ELM	ELM should implement a community awareness initiative aimed at the residents of Hlalanikahle to save water by using it wisely (and thereby reduce peak flows through the collector lines).
1.2		ELM	ELM should undertake a ground truthing investigation of its storm water infrastructure to determine if it feeds into the sewer network and, if found to occur, take measures to prevent the input of storm water into the collector lines and outfall sewer.
1.3		ELM	ELM shall undertake regular safety inspections of the four sewer collector lines.
1.4		ELM	ELM shall provide residents immediately adjacent the four new sewer collector lines with the local municipality's telephone number for their disaster management unit or other responsible department to rectify any raw sewerage leaks or overflow.
1.5		ELM	ELM shall affect temporary and permanent emergency repairs or maintenance as soon as is practically possible.
1.6		ELM	ELM shall undertake maintenance, including repair, reconstruction or replacement, in respect of the four sewer collector lines according to the same mitigations described herein for the construction phase.
1.7		ELM	ELM shall monitor the rehabilitated pipeline servitudes for signs of erosion.
1.8		ELM	If erosion is found to occur during the aforesaid monitoring, the ELM shall immediately correct (the 'source') and repair (the 'symptom') the erosion using method(s) that are an improvement on the mitigations proposed in this EMPr or on the unsuccessful mitigations originally used on site.
1.9		ELM	The rehabilitated pipeline servitudes shall be monitored following the completion of the Sewer Collector Lines for the recruitment of weed, invader and alien plant species.
1.10		ELM	ELM shall immediately uproot, cut or debark weed, invader and alien plant species upon being identified.
1.11		ELM	ELM shall collect and destroy all seeds of weed, invader and alien plant species occurring within disturbed and/or rehabilitated areas.

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Environmental Emergency Plan for the Control of Environmental Incidents

Definition of an 'Environmental Incident'
1. An unexpected sudden occurrence including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment whether immediate or delayed (NEMA, 1998, section 30 (1) (a)).

2. Any incident or accident in which a substance-
(a) pollutes or has the potential to pollute a water resource or
(b) has, or is likely to have, a detrimental effect on a water resource (NWA, 1998, section 20 (1))

Procedure
The contractor shall ensure that emergencies are reported and controlled in accordance with the sequence of events prescribed for spillages in a watercourse, on land and fire, including:

- Action to be taken
- Removal and remediation measures to be implemented
- Internal and external communication plan
- Prescribed reporting procedure

The contractor shall ensure that their employees are adequately trained to react to environmental emergencies in accordance with this procedure.
The SECO shall complete the table of contact numbers, erect them in a conspicuous place within the construction camp and make its whereabouts known to all of the contractor's staff.

Equipment
The following equipment is required to successfully implement this procedure. It must be ensured that the equipment is supplied to or is readily available for all living quarters, site offices, kitchen areas, workshop areas, stores and on site.

1. A spill kit including absorbent fibres, mats and booms
2. A net
3. A whistle
4. Adequate lighting for night shifts
5. Spades
6. Sand bags
7. Designated hazardous waste drums
8. (Trained personnel with) protective clothing for extinguishing fires
9. Fire extinguishers
10. Fire beaters
11. Water carts/tankers with pumps and hoses
12. Water pumps and pipes (for fires started at the watercourse crossings)

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Contact Numbers

Organisation	Name	Telephone/cell Number
Project Personnel		
Applicant		
Engineer		
Contractor		
HSO		
SECO		
ECO		
Interested and Affected Parties		
Land Owner		
Adjacent Land Owner		
Adjacent Land Owner		
Emergency Services		
Spill Clean-up Service Provider		
Fire Department		
Chief Fire Officer (Fire Chief)		
SA Police Services		
Disaster Management Centre		
LocalMunicipality		
DistrictMunicipality		
Irrigation Board		
Water Catchment Management Agency		
Water Treatment Works		
DWA (Regional Head of Department/Chief Director)		
DWA (Regional Director: Water sector Regulation & Use)		
DEDET (Provincial Head of Department)		
DEDET (Director: Environmental Impact Management)		
DEA (Director General)		
DEA (Director: Environmental Impact Evaluation)		

SPILLAGE IN A WATERCOURSE

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SPILLAGE IN A WATERCOURSE

ACTION TO BE TAKEN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person responsible for, or who discovers, a hazardous substance spill must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer. ● Note that the SECO will take control of all relevant actions once he/she arrives on the scene.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
Supervisor/SECO	Initial investigation	Determine the extent of the spill, i.e. its boundaries, by observing for the following: 1. Any visual indication of pollution, 2. Any odours or emissions detected, 3. Any indication of the source of pollution, 4. Any sign of damage to the natural system. ● The Supervisor/SECO should provide lighting if working at night.
Supervisor/SECO	Co-ordination	Sound an alarm/whistle. ● The designated response team consisting of area specific personnel and including the environmental leader, will congregate at the spill kit. ● All other employees who do not have specific duties to perform are to evacuate the affected area to a location designated by the Supervisor/SECO.
Supervisor/SECO	Co-ordination	Minimise the effects of the incident on the environment and persons by removing the source of the spill at least 100m away from the watercourse or cut-off the supply of the spill if the source is not moveable.
Supervisor/SECO	Co-ordination	Contain the spill by laying an absorbent sock or boom across the width of the watercourse AT A PRE-DETERMINED LOCATION downstream of the construction area (spill). ● A series of parallel booms may be required.
Supervisor/ECO	Co-ordination	Secure the affected area with danger tape.
HSO	Co-ordination	The site shall not be disturbed and no article or substance may be removed (without the consent of the inspector) if there is or likely to be a death, or if there is a loss of limb or part of a limb. However action can be taken to prevent a further accident, to remove the injured or dead or rescue persons from danger.
Engineer/SECO/ HSO	Decision-making	The Engineer will assess the situation in consultation with the SECO and HSO and act as required. ● The risk involved shall be assessed before anyone approaches the scene of the incident. ● The HSO will consult the MSDSs. ● The scale of the spill will dictate whether the spill will be cleaned up by using the on-site spill kit and in the prescribed manner, or by contacting a Spill Clean-Up Service Provider for assistance. ● The SECO will take photographs of the affected area. ● No person shall be allowed to approach a spill unless he/she is equipped with the personal protective clothing.
SECO	Directions	If a Spill Clean-Up Service Provider is used, assist the emergency services by clearly marking the route to be taken to the spill site.
SECO	Co-ordination	Take such measures as the Catchment Management Agency may either verbally or in writing direct within the time specified by such institution.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
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SPILLAGE IN A WATERCOURSE

REMOVAL AND REMEDIATION MEASURES TO BE IMPLEMENTED		
Personnel	**Responsibility**	**Action**
SECO	Co-ordination	Remove the contaminated sock or boom from the surface of the water. If lose fibres were scattered on the surface to capture hydrocarbons in shallow (still) pools, 'fish' it out with a net.
SECO	Co-ordination	Remove the contaminated soil from the banks of the watercourse, to the depth of penetration using a spade or shovel.
SECO	Co-ordination	Temporarily store the contaminant in the designated hazardous waste facility at the construction camp.
SECO	Co-ordination	Contact a licensed hazardous waste service provider to collect and transport the waste to a licensed hazardous waste landfill site.
SECO	Co-ordination	Rehabilitate the banks of the watercourse by replacing the topsoil and planting indigenous plants.
SECO	Monitoring	Immediately follow any known spillage of toxic substances into a stream or river with monitoring of the receiving streams or rivers and public health.
SECO	Co-ordination	Should water downstream of the spill be polluted, and fauna and flora show signs of deterioration or death, specialist hydrological or ecological advice must be sought for appropriate treatment and remedial procedures to be followed.
SECO	Monitoring	Take photographs of the affected area during rehabilitation.

SPILLAGE IN A WATERCOURSE

INTERNAL & EXTERNAL COMMUNICATION PLAN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person responsible for, or who discovers, a hazardous waste spill must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
SECO	Reporting	Report the incident to the Site Agent and/or Manager and the ECO.
SECO	Reporting	If the spill is too big for the spill kit, contact a Spill Clean-Up Service Provider.
SECO	Reporting	If the spill is going to affect downstream users, inform the Land Owner, the Irrigation Board and water treatment works (if applicable). ● Provide the following information to the water treatment works: 1. The exact location of the spillage, 2. The time of the spillage, 3. As much information about the nature of the pollution, 4. The name and telephone number of the person contacting them. ● Irrigation Boards control river structures and may be able to divert/or impound the river to protect 'water supply intakes'.
SECO	Reporting	Report the incident to the following authorities within 24 hours. 1. DEA (Director General), 2. DWA (Director General and Chief Director: Mpumalanga), 3. SA Police Services, 4. Fire Department, 5. Catchment Management Agency,, 6. MDEDET (provincial Head of Department) or NkomaziLocalMunicipality, and 7. any persons whose health may be affected by the incident.
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. Any risks posed by the incident to public health, safety & property, 3. the toxicity of substances or by-products released by the incident, and 4. any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment.
ECO/Applicant/Site Agent/RE	Reporting	If the nature of the impact constitutes a gross violation of the EA or any legislation: ● The ECO must report the incident to the applicant. ● The applicant must report the incident to the NkomaziLocalMunicipality, MDEDET, DEA, and DWA. ● The Site Agent and/or Manager must report the incident to their Environmental Group Manager, Divisional MD and CEO. ● The Resident Engineer must report the incident to his Superiors.

SPILLAGE IN A WATERCOURSE

PRESCRIBED REPORTING PROCEDURE		
Incident recording		
Personnel	**Responsibility**	**Action**
SECO	Investigation	Conduct an investigation, including interviews, and record all details of the incident. ● The cause must be investigated.
SECO	Reporting	Complete an Environmental Incident Report and forward it to all key project personnel, with the exception of the Emergency Services.
SECO	Reporting	Within 14 days of the incident, report the incident to the following authorities. 1. DEA (Director General), 2. MDEDET (provincial Head of Department), 3. Emalahleni Local Municipality, 4. Nkangala District Municipality, 5. DWA (Regional Director: Mpumalanga).
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. The substances involved and an estimation of the quantity released and their possible acute effect on persons & the environment & data needed to assess these effects, 3. Initial measures to minimise impacts, 4. Causes of the incident, whether direct or indirect including equipment, technology, system or management failure, and 5. Measures taken & to be taken to avoid a recurrence of such incident.
SECO	Reporting	Submit an action plan within 14 days, or a shorter period of time, if specified by the Regional Director: Mpumalanga (DWA).
SECO	Reporting	The action plan must include the following information: 1. A detailed time schedule of measures taken to: 1.1 Correct the impacts resulting from the incident; 1.2 Prevent the incident from causing any further impact; and 1.3 Prevent a recurrence of a similar incident.
Progress reporting		
SECO	Revising Procedures	Identify methods for preventing the incident from re-occurring and revise method statements and/or procedures for implementing as early as possible.
SECO	Training	Conduct either a toolbox talk or environmental awareness training/re-induction to the all employees and include additional mitigations to avoid a re-occurrence. ● Keep the program, including a signed attendance register, in the on-site environmental file.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

SPILLAGE ON LAND

SPILLAGE ON LAND

ACTION TO BE TAKEN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person responsible for, or who discovers, a hazardous substance spill must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer. ● Note that the SECO will take control of all relevant actions once he/she arrives on the scene.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
Supervisor/SECO	Initial investigation	Determine the extent of the spill, i.e. its boundaries, by observing for the following: ● Any visual indication of pollution, ● Any odours or emissions detected, ● Any indication of the source of pollution, ● Any sign of damage to the natural system. The Supervisor/SECO should provide lighting if working at night.
Supervisor/SECO	Co-ordination	Sound an alarm/whistle. ● The designated response team consisting of area specific personal and including the environmental leader, will congregate at the spill kit. ● All other employees who do not have specific duties to perform are to evacuate the affected area to a location designated by the Supervisor/SECO.
Supervisor/SECO	Co-ordination	Minimise the effects of the incident on the environment and persons by removing the source of the spill at least 100m away from the watercourse or cut-off the supply of the spill if the source is not moveable.
Supervisor/ECO	Co-ordination	Contain the spill to a confined area to prevent the spreading of the spilled chemical or substance. ● Use sand bags or construct earth berms. ● If relevant, close off all storm water drains with absorbent mats. ● Do not wash the spill with water as it will cause the spill to spread.
Supervisor/ECO	Co-ordination	Secure the affected area with danger tape.
HSO	Co-ordination	The site shall not be disturbed and no article or substance may be removed (without the consent of the inspector) if there is or likely to be a death, or if there is a loss of limb or part of a limb. However action can be taken to prevent a further accident, to remove the injured or dead or rescue persons from danger.
Engineer/SECO/ HSO	Decision-making	The Engineer will assess the situation in consultation with the SECO and HSO and act as required. ● The risk involved shall be assessed before anyone approaches the scene of the incident. ● The HSO will consult the MSDSs. ● The scale of the spill will dictate whether the spill will be cleaned up by using the on-site spill kit and in the prescribed manner, or by contacting a Spill Clean-Up Service Provider for assistance. ● The SECO will take photographs of the affected area. ● No person shall be allowed to approach a spill unless he/she is equipped with the personal protective clothing.
SECO	Directions	If a Spill Clean-Up Service Provider is used, assist the emergency services by clearly marking the route to be taken to the spill site.

SPILLAGE ON LAND

REMOVAL AND REMEDIATION MEASURES TO BE IMPLEMENTED		
Personnel	**Responsibility**	**Action**
SECO	Co-ordination	Remove the contaminated soil to the depth of penetration using a spade or shovel.
SECO	Co-ordination	Temporarily store the contaminant in the designated hazardous waste facility at the construction camp.
SECO	Co-ordination	Contact a licensed hazardous waste service provider to collect and transport the waste to a licensed hazardous waste landfill site.
SECO	Co-ordination	Rehabilitate the area cleared of hazardous waste by replacing the topsoil and planting indigenous plants.
SECO	Monitoring	Immediately follow any known spillage of toxic substances with monitoring of the receiving environment, and public health if necessary.
SECO	Monitoring	Take photographs of the affected area during rehabilitation.

SPILLAGE ON LAND

INTERNAL & EXTERNAL COMMUNICATION PLAN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person responsible for, or who discovers, a hazardous waste spill must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
SECO	Reporting	Report the incident to the Site Agent and/or Manager and the ECO.
SECO	Reporting	If the spill is too big for the spill kit, contact a Spill Clean-Up Service Provider.
SECO	Reporting	Report the incident to the following authorities. 1. DEA (Director General), 2. SA Police Services, 3. Fire Department, 4. MDEDET (provincial Head of Department) or NkomaziLocalMunicipality, and 5. any persons whose health may be affected by the incident.
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. Any risks posed by the incident to public health, safety & property, 3. the toxicity of substances or by-products released by the incident, and 4. any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment.
ECO/Applicant/Site Agent/RE	Reporting	If the nature of the impact constitutes a gross violation of the EA or any legislation: ● The ECO must report the incident to the applicant. ● The applicant must report the incident to the Emalahleni Local Municipality, Nkangala District Municipality, MDEDET, DEA, and DWA. ● The Site Agent and/or Manager must report the incident to their Environmental Group Manager, Divisional MD and CEO. ● The Resident Engineer must report the incident to his Superiors.

SPILLAGE ON LAND

PRESCRIBED REPORTING PROCEDURE		
Incident recording		
Personnel	**Responsibility**	**Action**
SECO	Investigation	Conduct an investigation, including interviews, and record all details of the incident. ● The cause must be investigated.
SECO	Reporting	Complete an Environmental Incident Report and forward it to all key project personnel, with the exception of the Emergency Services.
SECO	Reporting	Within 14 days of the incident, report the incident to the following authorities. 1. DEA (Director General) 2. MDEDET (provincial Head of Department), 3. Emalahleni Local Municipality, and 4. Nkangala District Municipality.
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. The substances involved and an estimation of the quantity released and their possible acute effect on persons & the environment & data needed to assess these effects, 3. Initial measures to minimise impacts, 4. Causes of the incident, whether direct or indirect including equipment, technology, system or management failure, and 5. Measures taken & to be taken to avoid a recurrence of such incident.
Progress reporting		
SECO	Revising Procedures	Identify methods for preventing the incident from re-occurring and revise method statements and/or procedures for implementing as early as possible.
SECO	Training	Conduct either a toolbox talk or environmental awareness training/re-induction to the employee(s) responsible for the spill and include additional mitigations to avoid a re-occurrence. ● Keep the program, including a signed attendance register, in the on-site environmental file.

FIRE

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

FIRE

ACTION TO BE TAKEN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person who starts or discovers a fire must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer. ● Note that the SECO will take over co-ordination of all relevant actions once he/she arrives on the scene.
SECO	Reporting	If there is potential for a fire to spread and endanger life, property or the environment, alert the landowner and Fire Department.
Land Owner	Reporting	Alert the owners of adjacent land.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
Supervisor/SECO	Co-ordination	Sound an alarm/whistle. ● The designated response team consisting of area specific personnel and including the environmental leader, will congregate at the fire fighting equipment. ● All other employees who do not have specific duties to perform are to evacuate the affected area to a location designated by the Supervisor/SECO.
SECO	Directions	Assist the Fire Department by clearly marking the route to be taken to the fire.
SECO	Co-ordination	Extinguish the fire or assist in doing so.
SECO	Co-ordination	Stop the spread of the fire.
SECO	Co-ordination	Provide assistance to a fire protection officer or forest officer in the event that they take control over the fighting of a fire.
HSO	Co-ordination	The site shall not be disturbed and no article or substance may be removed (without the consent of the inspector) if there is or likely to be a death, or if there is a loss of limb or part of a limb. However action can be taken to prevent a further accident, to remove the injured or dead or rescue persons from danger.

FIRE

REMEDIATION MEASURES TO BE IMPLEMENTED		
Personnel	**Responsibility**	**Action**
SECO	Assessment	Immediately follow any fire with an assessment of the effects on the environment, public health, safety and property.
SECO	Search	Search the scorched earth for reptiles and other creatures that can be rehabilitated and saved. ● Use only a licensed rehabilitation facility.
SECO	Monitoring	Monitor for signs of erosion after the first few rains and new flush. ● Manage erosion resulting from a loss in plant basal or aerial cover. ● Ensure that the control measures are not destructive.
SECO	Managing	No Vehicles or plant are permitted to drive through burnt areas.

FIRE

INTERNAL & EXTERNAL COMMUNICATION PLAN		
Personnel	**Responsibility**	**Action**
Employee	Reporting	The person who starts or discovers a fire must report the incident to their immediate Supervisor.
Supervisor	Reporting	Report the incident to the SECO, HSO and Resident Engineer. ● Note that the SECO will take control over all relevant actions once he/she arrives on the scene.
SECO	Reporting	Report the incident to the Site Agent and/or Manager and the ECO.
SECO	Reporting	If there is potential for a fire to spread and endanger life, property or the environment, alert the landowner and Fire Department.
Land Owner	Reporting	Alert the owners of adjacent land.
HSO	Reporting	Report the incident to an Inspector (designated under section 28 of the Occupational Health & Safety Act, 1993) within the prescribed period and manner.
SECO	Reporting	Report the incident to the following authorities. 1. DEA (Director General), 2. SA Police Services, 3. Fire Department, 4. MDEDET (provincial Head of Department) or EmalahleniLocal Municipality, and 5. any persons whose health may be affected by the incident.
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. Any risks posed by the incident to public health, safety & property, 3. the toxicity of substances or by-products released by the incident, and 4. any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment.
ECO/Applicant/Site Agent/RE	Reporting	If the nature of the impact constitutes a gross violation of the EA or any legislation: ● The ECO must report the incident to the applicant. ● The applicant must report the incident to the NkomaziLocalMunicipality, MDEDET, DEA, and DWA. ● The Site Agent and/or Manager must report the incident to their Environmental Group Manager, Divisional MD and CEO. ● The Resident Engineer must report the incident to his Superiors.

FIRE

PRESCRIBED REPORTING PROCEDURE		
Incident recording		
Personnel	**Responsibility**	**Action**
SECO	Investigation	Conduct an investigation, including interviews, and record all details of the incident. ● The cause must be investigated.
SECO	Reporting	Complete an Environmental Incident Report and forward it to all key project personnel, with the exception of the Emergency Services.
SECO	Reporting	Within 14 days of the incident, report the incident to the following authorities. 1. DEA (Director General), 2. MDEDET (provincial Head of Department), 3. Emalahleni Local Municipality, and 4. Nkangala District Municipality.
SECO	Reporting	Provide the following information: 1. The nature of the incident, 2. The substances involved and an estimation of the quantity released and their possible acute effect on persons & the environment & data needed to assess these effects, 3. Initial measures to minimise impacts, 4. Causes of the incident, whether direct or indirect including equipment, technology, system or management failure, and 5. Measures taken & to be taken to avoid a recurrence of such incident.
Progress reporting		
SECO	Revising Procedures	Identify methods for preventing the incident from re-occurring and revise method statements and/or procedures for implementing as early as possible.
SECO	Training	Conduct either a toolbox talk or environmental awareness training/re-induction to the employee(s) responsible for the spill and include additional mitigations to avoid a re-occurrence. ● Keep the program, including a signed attendance register, in the on-site environmental file.

10. Assumptions, Uncertainties and Gaps in Knowledge

"a description of any assumptions, uncertainties and gaps in knowledge;"
Regulation 22 (2) (m)

Refer to Section 6 for a full description of all assumptions, uncertainties and gaps in knowledge during the assessment of the environmental impacts.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

11. Reasoned Opinion

"a reasoned opinion as to whether the activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;"
Regulation 22 (2) (n)

The Hlalanikahle Sewer Network is specifically mentioned in the table of priority projects for 2012/2013 in the Nkangala Municipality's IDP because the existing network is failing to cope with the current volume of sewerage. Manholes overflow regularly, spilling raw human sewerage into the streets. This is harmful to the environment and is a health and safety concern to the community.

The requirements of the Sewer Collector Lines were calculated by the Engineer, including specific lengths, diameters and locations (**Appendix D-B**: Engineer's Design Report) to rectify blocked collector lines and raw sewerage overflowing from manholes in Hlalanikahle. Consequently, there was no evidence for the existence of any reasonable and feasible alternative(s) other than the preferred option and the no-go option.

The open areas to the north and east of Hlalanikahle are designated as threatened ecosystems, but they are categorized as vulnerable or of least concern at the local and provincial levels, respectively (**Appendix D-A: Site Sensitivity Plan**). There is a National Fresh Water Ecosystem Priority Area (NFEPA) along the eastern boundary of the township, but and with the exception of the end portion of Sewer Collector Line No. 1, the proposed pipelines are located outside the 100m buffer from the edge of the said watercourse **(Appendix D-A: Site Sensitivity Plan**).
The four Sewer Collector Lines comprise new construction, but are effectively increasing the capacity of the existing network to collect sewer. Three of the collector lines will be constructed within the streets or gravel access roads within the township. Sewer Collector Line No. 3 will be restricted to 40m by 4m of a disturbed wetland system.

Issues raised by registered I&APs including *inter alia*, concerns about safety and access during construction, have been effectively addressed by way of specific mitigations in the EMPr. I believe the activity should be authorized subject to the mitigations contained herein, specifically the EMPr.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

12. Representations and Comments

"Any representations and comments received in connection with the application or the basic assessment report;" Regulation 22 (2) (o)

Refer to section 3 for a summary of the issues raised, **Appendix E-I** to review all comments received, and **Appendix E-J** to see copies of the comments received.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

13. Minutes of Meetings

"The minutes of any meetings held by the EAP with interested and affected parties and other role players which record the views of the participants;"
Regulation 22 (2) (p)

Refer to **Appendix E-K** to review the minutes of the public meeting.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

14. Responses

"Any responses by the EAP to those representations, comments and views;"
Regulation 22 (2) (q)

Refer to **Appendix E-I** to review the responses by the EAP to all comments received.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

15. Specific Information

"any specific information required by the competent authority; and"
Regulation 22 (2) (r)

No other specific information was requested by the Mpumalanga Department of Economic Development, Environment and Tourism.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

16. Matters Required in terms of sections 24(4)(a) and (b) of the Act

"any other matters required in terms of sections 24(4)(a) and (b) of the Act."
Regulation 22 (2) (s)

No other matters.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

SECTION F: APPENDICES

APPENDIX A: SITE PLAN(S)
Annexure A: HSN Layout Plan

APPENDIX B: SITE PHOTOGRAPHS
Annexure A: Site photos of sewer line number 1
Annexure B: Site photos of sewer line number 2
Annexure C: Site photos of sewer line number 3
Annexure D: Site photos of sewer line number 4

APPENDIX C: FACILITY ILLUSTRATION(S)
Annexure A: Sewer Collector Line Plans

APPENDIX D: SPECIALIST REPORTS
Annexure A: Site Sensitivity Plan
Annexure B: Engineer's Design Report

APPENDIX E: PUBLIC PARTICIPATION PROCESS
Annexure A: Level of public participation
Annexure B: Site notice text
Annexure C: Proof of displayed notice boards
Annexure D: Background Information Document (BID) text
Annexure E: Proof of given Background Information Document (BID)
Annexure E (1): Distribution via email
Annexure E (2): Distribution by hand
Annexure F: Advertisement text
Annexure G: Proof of placed advertisement
Annexure H: List of Registered Interested and Affected Parties
Annexure I: Comment and Response Sheet
Annexure J: Copies of Comments Received
Annexure K: Meeting minutes
Annexure L: Meeting register
Annexure M: Proof of submission/delivery of the draft report to all State Departments/Organs of State

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
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APPENDIX A: SITE PLAN(S)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A: HSN Layout Plan

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

APPENDIX B: SITE PHOTOGRAPHS

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A: Site photos of sewer line collector #1

Annexure A (1): Site photos of the starting point of sewer line collector #1
(S 25° 50.966` E 29° 07.579`)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
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Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A (2): Site photos of the middle point of sewer line collector #1
(S 25° 50.952` E 29° 07.637`)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A (3): Site photos of the approximate end point of sewer line collector #1 (S 25° 50.938` E 29° 07.703`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A (4): Site photos of storm water outlet

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the storm water outlet.

Photo 2: North-eastern perspective of the storm water outlet.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the storm water outlet.

Photo 4: South-eastern perspective of the storm water outlet.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the storm water outlet.

Photo 6: South-western perspective of the storm water outlet.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the storm water outlet.

Photo 8: North-western perspective of the storm water outlet.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B: Site photos of sewer line collector #2

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B (1): Site photos of the starting point of sewer line collector #2
(S 25° 50.834` E 29° 07.510`)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B (2): Site photos of the middle point of sewer line collector #2
(S 25° 50.827` E 29° 07.566`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B (3): Site photos of the end point of sewer line collector #2
(S 25° 50.817` E 29° 07.643`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure C: Site photos of sewer line collector #3

Annexure C (1): Site photos of the starting point of sewer line collector #3
(S 25° 50.110` E 29° 07.364`)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure C (2): Site photos of the middle point of sewer line collector #3

The vegetation was too thick to get a GPS reading

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure C (3): Site photos of the end point of sewer line collector #3
(S 25° 50.090` E 29° 07.398`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure D: Site photos of sewer line collector #4

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure D (1): Site photos of the starting point of sewer line collector #4
(S 25° 50.275` E 29° 06.309`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure D (2): Site photos of the middle point of sewer line collector #4
(S 25° 50.251` E 29° 06.455`)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure D (3): Site photos of the end point of sewer line collector #4
(S 25° 50.229` E 29° 06.633`)

Photo 1: Northern perspective of the sewer connector line.

Photo 2: North-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Eastern perspective of the sewer connector line.

Photo 4: South-eastern perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Southern perspective of the sewer connector line.

Photo 6: South-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Western perspective of the sewer connector line.

Photo 8: North-western perspective of the sewer connector line.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

APPENDIX C: FACILITY ILLUSTRATION(S)

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A: Sewer Collector Line Plans

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

APPENDIX D: SPECIALIST REPORTS

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A: Site Sensitivity Plan

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B: Engineer's Design Report

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

APPENDIX E: PUBLIC PARTICIPATION PROCESS

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure A: Level of public participation

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

LEVEL OF PUBLIC PARTICIPATION QUESTIONAIRE FORM

Project: Hlalanikahle Sewer Network

Questions and Answers	Expand Geographical Area	Expand Interest Groups	Expand Process (i.e. no. of meetings, languages, means, etc.)
Scale of anticipated impacts			
1) Are the impacts of the project likely to extend beyond the boundaries of the local municipality?	X		
No			
2) Are the impacts of the project likely to extend beyond the boundaries of the province?	X		
No			
3) Is the project a greenfields development (a new development in a previously undisturbed area)?		X	X
No			
4) Does the area already suffer from socio-economic problems (e.g. job losses) or environmental problems (e.g. pollution), and is the project likely to exacerbate these?		X	X
There are existing environmental problems, but the intention of the project is to rectify those problems, specifically raw sewage overflowing from overburdened manholes. The project will unlikely exacerbate this problem.			
5) Is the project expected to have a wide variety of impacts (e.g. socio-economic and environmental)?		X	X
No.			
Public and environmental sensitivity of the project			
6) Are there widespread public concerns about the potential negative impacts of the project?	X	X	X
No.			
7) Is there a high degree of conflict among I&AP's?			X
8) Will the project impact on private land other than that of the applicant?	X		
No, not other than Eskom.			
9) Does the project have the potential to create unrealistic expectations (e.g. that a new factory would create a large number of jobs)?		X	X
No.			
Potentially affected parties			
10) Has very little previous public participation taken place in the area?			X
Yes. Challenges include informing participants about project specific issues. I&AP's tend to vent other concerns related to service delivery.			
11) Did previous public participation processes in the area result in conflict?			X
Not to our knowledge.			
12) Are there existing organizational structures (e.g. local forums) that can represent I&AP's?		X	X
Ward councilors.			
13) What is the literacy level of the community in terms of their ability to participate meaningfully within the public participation process?			X
Good.			
14) Is the area characterized by high social diversity (i.t.o socio-economic status, language or culture)?		X	X
No.			
15) Were people in the area victims of unfair expropriations or relocation in the past?		X	X
No.			

16) Is there a high level of unemployment in the area?		X	X
Yes.			
17) Do the I&AP's have special needs (e.g. a lack of skills to read or write, disability, etcetera)?			X
Some are disabled, but we assume they have family support. Special needs include no internet, postal address or fax.			

Conclusion:
Based on the information provided in the table above, Ecoleges shall elaborate on the minimum requirements of the public participation process as described in the EIA Regulations, 2010, by:

1. Hand delivering the BID's to residents.
2. Holding a public meeting at the local Police Station.
3. Informing local residents of the availability of Draft Reports at the Police Station for comment using sms.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure B: Site notice text

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

PUBLIC PARTICIPATION NOTICE OF AN APPLICATION TO CONDUCT A BASIC ASSESSMENT AND A POSSIBLE APPLICATION FOR A GENERAL AUTHORISATION/WATER USE LICENSE (MDEDET Ref No.: 17/2/3N-227)

Applications:

Notice is given in terms of Regulations 21(2)(a) and 54(2)(c) of GN No. R. 543, 18 June 2010, made under sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended. An application was submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) on the 18th February, 2013 to undertake activities identified in Listing Notice 1, GN No. R. 544 and Listing Notice 3, GN No. R. 546, published on 18 June 2010 for:

- The construction of the Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga.

Furthermore, an application for a GA/WUL in terms of the National Water Act, 1998 (Act No. 36 of 1998) may be submitted to the Department of Water Affairs (DWA) for:

- A Section 21 (i) water use - altering the beds, banks, course or characteristics of a watercourse.

Description of activity:

Four new Sewer Collector Lines will be constructed as follows:

1. A new 200mm (OD) sewer collector line, approximately 250m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
2. A new 200mm (OD) sewer collector line, approximately 200m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
3. A new 200mm (OD) sewer collector line, approximately 40m long, will be constructed from an existing manhole to an existing 800mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
4. A new 355mm (OD) sewer collector line, approximately 550m long, will be constructed from Hlalanikahle extension 10 & 11 to an existing 800mm OD outfall sewer line. The design throughput is $99.2ls^{-1}$.

Manholes will be constructed at key points along the proposed collector lines. Whilst alternatives are being investigated, no reasonable or feasible alternatives existed at the time of this advertisement.

EIA Regulations LN 1 of 2010:

● Activity No. 9 – The construction of facilities or infrastructure exceeding 1000m in length for the bulk transportation of water, sewage or storm water...;
● Activity No. 11 - The construction of dams, weirs, buildings exceeding $50m^2$ in size or infrastructure or structures covering $50m^2$ or more where such construction occurs within a watercourse or within 32m of a watercourse…;
● Activity No. 18 - The infilling or depositing of any material of more than $5m^3$ into, or the dredging, excavation, removal or moving of soil, sand, pebbles or rock from a watercourse…;
● Activity No. 26 - Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
● Activity No. 37 - The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water…;
● Activity No 40 - The expansion of (iv) infrastructure by more than $50m^2$ within a watercourse or within 32m of a watercourse…

Potential Listed Activities include the following.

EIA Regulations LN 3 of 2010:

● Activity No. 12 - The clearance of an area of $300m^2$ or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation…;
● Activity No.16 – The construction of infrastructure covering $10m^2$ or more where such construction occurs within a watercourse or within 32m of a watercourse…;
● Activity No. 24 - The expansion of infrastructure where the infrastructure will be expanded by $10m^2$ or more where such construction occurs within a watercourse or within 32m of a watercourse…

Kindly note that an Assessment of the aforementioned activities was hand delivered to the Department on 19th February, 2013. If the motivation is approved, the BA will be withdrawn and an EMPr will be compiled for approval by the Department. Clarification is also being sought from DWA regarding the applicability of a GA or WUL application.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Applicant:
Nkangala District Municipality

Consultant:

Contact person:
Shaun MacGregor (*MSc., Pr.Sci.Nat.*),

Cell: 083 981 1031,
Fax: 086 697 9316,
E-Mail: shaun@ecoleges.co.za,
PO Box 9005, Nelspruit, 1200.
www.ecoleges.co.za

Date of advertisement:
05th March 2013

Date of public site meeting:
22nd March 2013

Time of meeting:
10h00

Location:
Hlalanikahle Police Station.

Registration:

For further information and/or to be identified and registered as an interested and/or affected party, please submit in writing your name, contact details including address, and interest in the matter to the contact person and in the manner(s) provided above during the registration/commenting period - within 30 days of publication of this advertisement, excluding the period 15 December 2010 to 02 January 2011.

Annexure C: Proof of displayed notice boards

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 1: Location of site notice at the entrance gate to the bus depot at the start of Sewer Collector Line No. 4.

Photo 2: Closer view of the site notice at the entrance gate to the bus depot.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 3: Location of site notice on the urban edge at the start of Sewer Collector Line No. 3.

Photo 4: Closer view of the site notice on the urban edge.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 5: Location of the site notice outside a tuck shop at the start of Sewer Collector Line No. 1.

Photo 6: Closer view of the site notice outside a tuck shop.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Photo 7: Location of the site notice on the street corner at the start of Sewer Collector Line No. 2.

Photo 8: Closer view of the site notice on the street corner.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure D: Background Information Document (BID) text

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Environmental Consultants

BACKGROUND INFORMATION DOCUMENT

Construction of the Hlalanikahle Sewer Network (Ref. No. 17/2/3N-227), Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.

PURPOSE OF THIS DOCUMENT

The purpose of this document is to provide background information to the proposed project and to obtain comments and contributions from stakeholders with regards to potential environmental impacts – which includes (but is not limited to): ecological, social, economic, physical, aesthetic, etc.

When an applicant proposes to undertake a listed activity, an application must be made for environmental authorization. The application must be supported by a report, which has been compiled as a result of an assessment process. After the competent authority has made a decision on the application, an appeal may be made against the decision, or parts thereof.

Ecoleges, as the independent Environmental Consultant, has been appointed by the proponent/applicant, Nkangala District Municipality, to compile the Basic Assessment (BA) Report and a General Authorisation (GA) or Water Use License (WUL) application, which will be reviewed by the relevant competent authorities (the Mpumalanga Department of Economic Development Environment and Tourism and the Department of Water Affairs, respectively).

The aim of the Reports is to ensure that the environmental impacts are taken into consideration, to ensure stakeholder engagement, and to provide decision makers with sufficient information to make an informed decision on the proposed activities.

The Department's decision whether to grant or refuse an Environmental Authorisation (EA) or a GA/WUL will be based on information provided in the reports.

YOUR COMMENTS WILL FORM PART OF THE BA AND GA/WUL APPLICATION REPORTS

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

APPLICABLE LEGISLATION

Notice is given in terms of Regulations 21(2)(a) and 54(2)(c) of GN No. R. 543, 18 June 2010, made under sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

An application was submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) on 18th February, 2013 to undertake activities identified in Listing Notice 1, GN No. R. 544, and Listing Notice 3, GN No. R. 546, published on 18 June 2010 for:

- The construction of the Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga.

Furthermore, an application for a GA/WUL in terms of the National Water Act, 1998 (Act No. 36 of 1998) may be submitted to the Department of Water Affairs (DWA) for:

- A Section 21 (i) water use - altering the beds, banks, course or characteristics of a watercourse.

The Basic Assessment (BA) process is a planning and decision-making tool that is used to identify, predict and evaluate the potential and actual environmental impacts of a proposed development or project. It is conducted in compliance with Chapter 5 of the National Environmental Management Act, 1998 (NEMA) as amended. The EIA regulations, 2010 (Government Notice No. R. 543) identify a list of activities for which a BA must be conducted.

The proposal has the following potential listed activities:

EIA Regulations LN 1 of 2010:
● Activity No. 9 – The construction of facilities or infrastructure exceeding 1000m in length for the bulk transportation of water, sewage or storm water...;
● Activity No. 11 - The construction of dams, weirs, buildings exceeding 50m^2 in size or infrastructure or structures covering 50m^2 or more where such construction occurs within a watercourse or within 32m of a watercourse…;
● Activity No. 18 - The infilling or depositing of any material of more than 5m^3 into, or the dredging, excavation, removal or moving of soil, sand, pebbles or rock from a watercourse…;
● Activity No. 26 - Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).
● Activity No. 37 - The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water…;
● Activity No 40 - The expansion of (iv) infrastructure by more than 50m^2 within a watercourse or within 32m of a watercourse…

EIA Regulations LN 3 of 2010:
● Activity No. 12 - The clearance of an area of 300m^2 or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation…;
● Activity No.16 – The construction of infrastructure covering 10m^2 or more where such construction occurs within a watercourse or within 32m of a watercourse…;
● Activity No. 24 - The expansion of infrastructure where the infrastructure will be expanded by 10m^2 or more where such construction occurs within a watercourse or within 32m of a watercourse…

Kindly note that an Assessment of the aforementioned activities was hand delivered to the Department on 19th February, 2013. If the motivation is approved, the BA will be withdrawn and an EMPr will be compiled for approval by the Department. Clarification is also being sought from DWA regarding the applicability of a GA or WUL application.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

PURPOSE OF THE PROJECT

The overall objective is to undertake and complete a robust and defendable BA process that will serve to inform the Mpumalanga Department of Economic Development, Environment and Tourism's (MDEDET) decision on the environmental acceptability of the proposed development. The proposed development involve the construction of the Hlalanikahle Sewer Network (Ref. No. 17/2/3N-227), Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.

LOCATION

The proposed collector lines will be added to the existing Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.

1. <u>Sewer Collector Line No. 1</u>

	Latitude (S):		Longitude (E):	
• Starting point of the activity	25°	50.966‘	29°	07.579‘
• Middle point of the activity	25°	50.952‘	29°	07,637‘
• End point of the activity	25°	50,938‘	29°	07,703‘

2. <u>Sewer Collector Line No. 2</u>

	Latitude (S):		Longitude (E):	
• Starting point of the activity	25°	50.834‘	29°	07.510‘
• Middle point of the activity	25°	50.827‘	29°	07,566‘
• End point of the activity	25°	50,817‘	29°	07,643‘

3. <u>Sewer Collector Line No. 3</u>

	Latitude (S):		Longitude (E):	
• Starting point of the activity	25°	50.110‘	29°	07.364‘
• Middle point of the activity	The vegetation was too thick to get a GPS reading			
• End point of the activity	25°	50,090‘	29°	07,398‘

4. <u>Sewer Collector Line No. 4</u>

	Latitude (S):		Longitude (E):	
• Starting point of the activity	25°	50.275‘	29°	06.309‘
• Middle point of the activity	25°	50.251‘	29°	06,455‘
• End point of the activity	25°	50,229‘	29°	06,633‘

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

PROJECT DESCRIPTION

Four new Sewer Collector Lines will be constructed as follows:

5. A new 200mm (OD) sewer collector line, approximately 250m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
6. A new 200mm (OD) sewer collector line, approximately 200m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
7. A new 200mm (OD) sewer collector line, approximately 40m long, will be constructed from an existing manhole to an existing 800mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
8. A new 355mm (OD) sewer collector line, approximately 550m long, will be constructed from Hlalanikahle extension 10 & 11 to an existing 800mm OD outfall sewer line. The design throughput is $99.2ls^{-1}$.

Manholes will be constructed at key points along the proposed collector lines. Whilst alternatives are being investigated, no reasonable or feasible alternatives existed at the time of this advertisement.

DESCRIPTION OF TASKS

- An advertisement will be placed in the Witbank News, a local newspaper, on 08th March, 2013.
- Stakeholders, including adjacent landowners, neighbours within a 100 m radius, and the relevant authorities will be notified of the proposed development in writing on the 05th March, 2013.
- Notice boards advertising the applications will be placed at the site on the 05th March, 2013.
- A Public meeting will be held at 10h00 on 22nd March 2013 at the Hlalanikahle Police Station.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

ANTICIPATED ISSUES

Environmental issues that may be addressed in the Report could include the following:

- Wetlands and/or non-perennial watercourses (including 1:100 yr floodline)

YOUR COMMENTS PLEASE!

Your comments on the proposed projects, the public participation process, and issues needing investigation, will assist the technical studies and the authorities in their consideration of the relevant environmental and social aspects.

You are invited to register as an Interested and Affected Party (I&AP) and to assist us in:
- identifying possible impacts of the proposed developments on the environment,
- making suggestions for mitigation and/or alternatives, and
- considering the "need" and "desirability".

Mitigations
Mitigation measures will be developed for the anticipated issues. Stakeholders are however welcome to comment on these issues and provide additional observations.

Alternatives
Consideration of Alternatives is one of the most critical elements of the BA process. Its role is to provide a framework for sound decision-making based on the principle of sustainable development.

Alternatives should be identified as early as possible in the project cycle.

Ecoleges not only welcomes stakeholders' input/suggestions, but also urges the public to submit possible alternatives.

It is important to note that an alternative is defined as a 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.

When submitting alternatives, the recommended alternative must be:

- Practicable,
- **Feasible**,
- Relevant,
- **Reasonable** and
- Viable.

Need and Desirability
'Need and desirability' is determined by considering the broader societal/community needs and interests The general meaning of need and desirability refers to time and place, respectively, i.e. is this the right time and is it the right place for locating the proposed activity.

In order to ensure that you are registered as an interested and/or affected party, Please complete the enclosed REGISTRATION AND COMMENT SHEET and forward it to the address, fax or email provided below, on or before **Wednesday 10th April, 2013**.

Postal Address:
P.O Box 9005
Nelspruit
1200

Fax: 086 697 9316

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

E-mail: shaun@ecoleges.co.za

OR For any enquiries or further information

Visit us at:

Physical address:
12 Suikerriet Street
Central Park Business Centre
Unit 59.2
Nelspruit
1200

Cell: 083 981 1031

REGISTRATION AND COMMENT SHEET

HLALANIKAHLE SEWER NETWORK, EMALAHLENI LOCAL MUNICIPALITY, MPUMALANGA (MDEDET REF NO. 17/2/3N-227)

ECOLEGES REFERENCE: 2013_002P

Title _____Name _____

Surname_____

Company Name / Interest Group_____

_____

Postal or Residential Address_____

_____

_____

_____

Town/City_____

Postal Code_____

Tel ( )_____

Cell_____

Fax ( )_____

E-mail address_____

In accordance with EIA Regulations, 2010– Regulation 56 (1) - A registered interested and affected party is entitled to comment, in writing, on all written submissions including draft reports made to the competent authority… provided that - (c) the interested and affected party discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application. Please supply such information in the space provided below

_____

_____

_____

_____

Please indicate with an **X** whether you would like to be kept informed of the BA process

YES, I would like to be kept informed	**YES**
NO, I am not interested	**NO**

If "YES", how would you like to be informed? (please mark the appropriate block with an "**X**")

E-mail	
Fax	

COMMENTS: (If you require more space than that which is provided, please attach additional pages)

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for your participation

Please be assured that your comments will form part of the final document to be submitted to the decision-making authority

Please complete and return this Registration and Comment sheet to **SHAUN MACGREGOR** by no later than **10TH April 2013**.

Address: P.O. Box 9005
Nelspruit
1200
Fax: 086 697 9316
E-mail: shaun@ecoleges.co.za

Please feel free to phone us on 083 981 1031, should you not have access to fax or e-mail

Annexure E: Proof of given Background Information Document (BID)

Annexure E (1): Distribution via email

Annexure E (2): Distribution by hand

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure F: Advertisement text

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

PUBLIC PARTICIPATION NOTICE OF APPLICATION TO CONDUCT A BASIC ASSESSMENT (MDEDET Ref No.: 17/2/3N-227) AND INTENTION TO UNDERTAKE A GENERAL AUTHORISATION (GA) OR WATER USE LICENSE (WUL) APPLICATION

Notice is given in terms of Regulations 21(2)(a) and 54(2)(c) of GN No. R. 543, 18 June 2010, made under sections 24(5), 24M and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended. An application has been submitted to the Mpumalanga Department of Economic Development, Environment and Tourism (MDEDET) to undertake activities identified in Listing Notice 1, GN No. R. 544 and Listing Notice 3, GN No. R. 546, published on 18 June 2010 for:

- The construction of the Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province.

An application for a GA or WUL in terms of the National Water Act, 1998 (Act No. 36 of 1998) may be required by the Department of Water Affairs (DWA) for:

- A Section 21 (i) water use.

Description of activities:
Four new Sewer Collector Lines will be constructed, including: two 200mm (OD) pipelines with design throughputs of $10ls^{-1}$ from an existing manhole to an existing 500mm (OD) outfall sewer line, approximately 200 and 250m long; and a 200mm and 355mm (OD) sewer collector line, approximately 40m long and 550m long, respectively, from an existing manhole or Hlalanikahle extension 10 & 11 to an existing 800mm OD outfall sewer line. The design throughputs are $10ls^{-1}$ and $99.2ls^{-1}$, respectively. Manholes will be constructed at key points along the proposed collector pipelines. Whilst alternatives are being investigated, no reasonable or feasible alternatives existed at the time of this advertisement.

Potential Listed Activities include:
EIA Regulations LN1 of 2010: ● Activity No. 9 - The construction of facilities or infrastructure exceeding 1000m in length for the bulk transportation of water, sewage or storm water – (i) with an internal diameter of 0.36m or more; or (ii) with a peak throughput of $120ls^{-1}$or more…● Activity No. 11 - The construction of: (xi) infrastructure or structures covering $50m^2$ or more where such construction occurs within a watercourse or within 32 m of a watercourse…; ● Activity No. 18 - The infilling or depositing of any material of more than $5m^3$ into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse...; ● Activity No 26 - Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004). ● Activity No. 37 - The expansion of facilities or infrastructure for the bulk transportation of water, sewage or storm water…; ● Activity No 40 - The expansion of (iv) infrastructure by more than 50 m^2 within a watercourse or within 32m of a watercourse…
EIA Regulations LN3 of 2010: ● Activity No. 12 - The clearance of an area of $300m^2$ or more of vegetation where 75% or more of the vegetation cover constitutes indigenous vegetation; ● Activity No. 16 - The construction of: (iv) infrastructure covering $10m^2$ or more where such construction occurs within a watercourse or within 32m of a watercourse…; and ● Activity No 24 - The expansion of: (d) infrastructure where the infrastructure will be expanded by $10m^2$ or more; where such construction occurs within a watercourse or within 32m of a watercourse...

An Assessment of the aforementioned activities was hand delivered to the Department on 19 February 2013. If the motivation is approved, the BA will be withdrawn and an EMPr will be compiled for approval by the Department. Clarification is being sought from DWA regarding the applicability of a GA or WUL application.

Applicant: Nkangala District Municipality
Consultant: **Ecoleges Environmental Consultants**
Contact person: Shaun MacGregor (*MSc., Pr.Sci.Nat.*), Cell: 083 981 1031, Fax: 086 697 9316, e-mail: shaun@ecoleges.co.za, PO Box 9005, Nelspruit, 1200, www.ecoleges.co.za

Date and time of public site meeting: 10h00 on 22 March 2013
Location of meeting: Hlalanikahle Police Station

For further information and/or to be identified and registered as an interested and/or affected party, please submit in writing your name, contact details including address, and interest in the matter to the contact person and in the manner(s) provided above during the commenting period - within 30 days of publication of this advertisement. Date of advertisement: 8 March 2013

Annexure G: Proof of placed advertisement

The Advert was in the classifieds section of Witbank Nuus on Friday 08th of April, 2013

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure H: List of Registered Interested and Affected Parties

Organization	MDEDET
Name & Position	Dineo Tswai
Postal Address	
Tel/Cell	076 644 1707
Fax	
E-mail	dtswai@wit.mpu.gov.za
Organization	MDEDET
Name & Position	Okwethu-kuhle Fakude
Postal Address	
Tel/Cell	082 214 7435/013 690 2595
Fax	
E-mail	oqmatenjwa@yahoo.com
Organization	DWA
Name & Position	Sampie Shabangu
Postal Address	P/Bag X 11259 Nelspruit 1200
Tel/Cell	013 759 7636
Fax	
E-mail	Shabangus2@dwa.gov.za
Organization	DWA
Name & Position	Prudence Dzambukeri
Postal Address	P/Bag X 11259 Nelspruit 1200
Tel/Cell	013 759 7316
Fax	
E-mail	dzambukerip@dwa.gov.za
Organization	DAFF
Name & Position	Zinzile Mtotywa
Postal Address	P/Bag X 11259 Nelspruit 1200
Tel/Cell	071 883 2768/013 759 7388
Fax	086 714 0746
E-mail	zinzilem@nda.agric.za
Organization	Emalahleni Local Municipality
Name & Position	G Mthimunye (Municipal Manager)
Postal Address	
Tel/Cell	013 690 6208
Fax	
E-mail	mbethefak@emalahleni.gov.za
Organization	Emalahleni Local Municipality
Name & Position	Meisie Ndlovu (Ward Councillor)
Postal Address	
Tel/Cell	082 406 7682
Fax	
E-mail	
Organization	Emalahleni Local Municipality
Name & Position	Jappie Msibi(Ward Councillor)
Postal Address	
Tel/Cell	073 789 1521
Fax	
E-mail	Jmsibi25@gmail.com
Organization	Emalahleni Local Municipality
Name & Position	Lydia Magabutse(Ward Councillor)
Postal Address	
Tel/Cell	073 399 4823
Fax	
E-mail	Lydiamahlangu4@gmail.com

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Organization	Emalahleni Local Municipality
Name & Position	Thami Khumalo(Ward Councillor)
Postal Address	
Tel/Cell	082 795 0540
Fax	
E-mail	
Organization	Emalahleni Local Municipality
Name & Position	EJ Nkabinde (Environmental Health Officer)
Postal Address	
Tel/Cell	013 690 6350
Fax	
E-mail	nkabindeej@emalahleni.gov.za
Organization	Emalahleni Local Municipality
Name & Position	Phumzile Madonsela (Civil Technician for Water & Sanitation)
Postal Address	
Tel/Cell	013 690 6431/079 744 1688
Fax	
E-mail	
Organization	Emalahleni Local Municipality
Name & Position	T Biyela (Town Planner)
Postal Address	
Tel/Cell	013 690 6448
Fax	
E-mail	mkhabeladp@emalahleni.gov.za
Organization	Nkangala District Municipality
Name & Position	AG Zimbwa (Acting Municipal Manager)
Postal Address	PO Box 437 Middleburg 1050
Tel/Cell	013 249 2004
Fax	
E-mail	gambulc@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	EK Tshabalala (Manager: Social Services)
Postal Address	
Tel/Cell	013 249 2004
Fax	
E-mail	tshabalalaek@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	Mpho Nembilwi (Environmental Health Officer)
Postal Address	
Tel/Cell	013 249 2132
Fax	
E-mail	nembilwim@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	Boetie Mathe (Town Planner)
Postal Address	
Tel/Cell	013 249 2042
Fax	
E-mail	matheb@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	Gift Mathalise (Development Control Planner)
Postal Address	
Tel/Cell	013 249 2044/076 938 4886
Fax	
E-mail	mathaliseg@nkangaladm.gov.za

Organization	Nkangala District Municipality
Name & Position	FR Ntekele
Postal Address	
Tel/Cell	
Fax	
E-mail	ntekelefr@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	Lawrence Makofane
Postal Address	
Tel/Cell	013 249 2039/072 543 5209
Fax	013 249 2145
E-mail	makofanelt@nkangaladm.gov.za
Organization	Nkangala District Municipality
Name & Position	Mokgadi Mokgolomotho
Postal Address	
Tel/Cell	013 249 2025/072 229 0278
Fax	013 249 2145
E-mail	mokgolomothome@nkangaladm.gov.za
Organization	ESKOM
Name & Position	Vuledzani Thanyani (senior Environmental Advisor)
Postal Address	
Tel/Cell	011 800 5601/073 763 6629
Fax	086 662 3721
E-mail	thanyav@eskom.co.za
Organization	83L Ext 1
Name & Position	Mavis Ncheba
Postal Address	
Tel/Cell	072 992 5628
Fax	
E-mail	
Organization	81L Ext 1
Name & Position	Irene Khoza
Postal Address	
Tel/Cell	072 591 5328
Fax	
E-mail	
Organization	303 Masila
Name & Position	Abel Selala
Postal Address	
Tel/Cell	076 270 3150
Fax	
E-mail	
Organization	4737 Phase 4
Name & Position	Ntombi Mazibuko
Postal Address	
Tel/Cell	083 589 0420
Fax	
E-mail	
Organization	284 Ext 3
Name & Position	Linah Zwane
Postal Address	
Tel/Cell	073 939 8970
Fax	
E-mail	

Organization	307 Ext 3
Name & Position	Joannah Mtsweni
Postal Address	
Tel/Cell	078 136 8371
Fax	
E-mail	
Organization	9912 Ext 3
Name & Position	Zodwa Mahlangu
Postal Address	
Tel/Cell	076 523 3538
Fax	
E-mail	
Organization	259 Ext 3
Name & Position	Isai Khosa
Postal Address	
Tel/Cell	082 404 8632
Fax	
E-mail	
Organization	278 Ext 3
Name & Position	Dumisani Mavundla
Postal Address	
Tel/Cell	072 303 1685
Fax	
E-mail	
Organization	260 Ext 1
Name & Position	Nomcebo Shange
Postal Address	
Tel/Cell	076 467 8785
Fax	
E-mail	
Organization	
Name & Position	Moses Mtsweni
Postal Address	
Tel/Cell	072 341 8021
Fax	
E-mail	msvermaak@telkomsa.net
Organization	South of Kruger Mine Forum
Name & Position	Ronelle Putter
Postal Address	PO Box 382 Malelane 1320
Tel/Cell	013 790 0591/082 388 1721
Fax	013 790 1233
E-mail	ronelle.putter@lantic.net
Organization	1072
Name & Position	Linah Mahlangu
Postal Address	
Tel/Cell	071 381 8583
Fax	
E-mail	
Organization	1019
Name & Position	Ntombifuthi Zunguza
Postal Address	
Tel/Cell	079 710 8310
Fax	
E-mail	
Organization	

Name & Position	Margarette Radebe
Postal Address	
Tel/Cell	078 055 7932
Fax	
E-mail	
Organization	
Name & Position	Bonny Masuku
Postal Address	
Tel/Cell	079 558 3185
Fax	
E-mail	
Organization	
Name & Position	Ntombikayise Mathebula
Postal Address	
Tel/Cell	082 404 1115
Fax	
E-mail	
Organization	Ext 1
Name & Position	Thembi Ngwenya
Postal Address	
Tel/Cell	078 546 7981
Fax	
E-mail	
Organization	Ext 1
Name & Position	Anna Ntuli
Postal Address	
Tel/Cell	073 634 3361
Fax	
E-mail	
Organization	9921 Ext 1
Name & Position	Sonto Ndlovu
Postal Address	
Tel/Cell	083 384 2828
Fax	
E-mail	
Organization	54L
Name & Position	Ronny Mabowa
Postal Address	
Tel/Cell	072 441 9365
Fax	
E-mail	
Organization	82L
Name & Position	Raimundo Massincane
Postal Address	
Tel/Cell	072 829 3155
Fax	
E-mail	
Organization	29L
Name & Position	Honest Nyathi
Postal Address	
Tel/Cell	078 998 6448
Fax	
E-mail	
Organization	56L
Name & Position	Lucas Sithole

Postal Address	
Tel/Cell	078 971 2947
Fax	
E-mail	
Organization	77L
Name & Position	Terry Khoza
Postal Address	
Tel/Cell	076 223 3051
Fax	
E-mail	
Organization	58L
Name & Position	Graces Ndlela
Postal Address	
Tel/Cell	072 441 9365
Fax	
E-mail	
Organization	
Name & Position	Sizakele Maringa
Postal Address	
Tel/Cell	072 329 2355
Fax	
E-mail	
Organization	Ext L
Name & Position	Nomasonto Thabede
Postal Address	
Tel/Cell	073 505 6177
Fax	
E-mail	
Organization	Ext1
Name & Position	Zanele Ngwenya
Postal Address	
Tel/Cell	073 789 1521
Fax	
E-mail	
Organization	42L
Name & Position	Jabu Nkambule
Postal Address	
Tel/Cell	078 759 1696
Fax	
E-mail	
Organization	3L
Name & Position	Isaac Deklerk
Postal Address	
Tel/Cell	079 287 8661
Fax	
E-mail	
Organization	
Name & Position	Mxolisi Malinga
Postal Address	
Tel/Cell	073 771 7072
Fax	
E-mail	xmxolisi@gmail.com
Organization	9998L
Name & Position	Sophie Nkambule
Postal Address	

Tel/Cell	071 130 2512
Fax	
E-mail	
Organization	9913L
Name & Position	AR Matavela
Postal Address	
Tel/Cell	079 936 0112
Fax	
E-mail	
Organization	8540L
Name & Position	WFM Mabitla
Postal Address	
Tel/Cell	073 469 3822
Fax	
E-mail	
Organization	9993L
Name & Position	LB Mahlangu
Postal Address	
Tel/Cell	076 996 5982
Fax	
E-mail	
Organization	9980L
Name & Position	Vusi Phoku
Postal Address	
Tel/Cell	072 082 2572
Fax	
E-mail	
Organization	9928L
Name & Position	Moses Skhosana
Postal Address	
Tel/Cell	078 955 5471
Fax	
E-mail	
Organization	9941L
Name & Position	Aubrey Malomane
Postal Address	
Tel/Cell	072 747 2973
Fax	
E-mail	
Organization	9947L
Name & Position	Christopher Sekgobela
Postal Address	
Tel/Cell	076 238 1579
Fax	
E-mail	
Organization	9966L
Name & Position	Violet Sgudla
Postal Address	
Tel/Cell	079 980 8837
Fax	
E-mail	

Organization	9965L
Name & Position	Margarette Mathibela
Postal Address	
Tel/Cell	073 829 4088
Fax	
E-mail	
Organization	9928L
Name & Position	Nomvula Ntuli
Postal Address	
Tel/Cell	071 469 4145
Fax	
E-mail	
Organization	9910L
Name & Position	Joyce Mashego
Postal Address	
Tel/Cell	079 016 9028
Fax	
E-mail	
Organization	9814L
Name & Position	Martha Ntuli
Postal Address	
Tel/Cell	072 361 1134
Fax	
E-mail	
Organization	
Name & Position	Anna Masuku
Postal Address	
Tel/Cell	079 558 3185
Fax	
E-mail	
Organization	12L
Name & Position	Sisy Msibi
Postal Address	
Tel/Cell	076 568 5759
Fax	
E-mail	
Organization	
Name & Position	Anna Malinga
Postal Address	
Tel/Cell	013 698 0128/072 705 3169
Fax	
E-mail	

Annexure I: Comment and Response Sheet

Name & Contact	Correspondence & Date	Comment	Response
Johanna Mtsweni (078 136 8371)	Personally during delivery of BID, 05/03/13.	Would be very happy if the project becomes a success, because the sewage leakages are a serious problem.	Noted.
Linah Zwane (073 939 8970)	Personally during delivery of BID, 05/03/13.	Has no problem with the project as it will actually be an improvement to their lives. Won't be able to attend the meeting, but would like to be kept informed.	Noted.
Meisie Ndlovu (082 4067682)	Public Meeting on 22/03/13	Wanted to know if the Municipality knows about this project and why they are not there.	Hlengile noted that the local and district municipalities were informed via email on the 08th March 2013.
		Wanted to know why the councillors were not consulted.	Hlengile explained that Ecoleges did not know that councillors were supposed to be consulted separately from the public/community and thanked her for the advice.
		Mentioned that 115 stands are not connected to a sewer line because not all stands were surveyed in Ward 1. Also indicated that Ward1 lacks a sewage outline.	Noted.
Meisie Ndlovu (082 4067682)	Public Meeting on 22/03/13	Explained to the attendee's that the map is not as precise as it should be, so most of the concerns are not valid because houses/yards may not be affected by the proposed project. She clarified that this project has nothing to do with housing and that this is in fact an advantage as most stands need the sewer line before building houses in order to avoid such complications in future.	The following email was sent to the engineer and municipality on 25/03/2013: "Good afternoon Ladies and Gentlemen, A public meeting was held on Friday, 22nd March 2013 at Hlalanikahle Police Station as per the Background Information Document (BID) that
Hilda Mazibuko (083 589 0420)	Personally during delivery of BID, 05/03/13.	Would be very happy should the project be successful, but should her fence be damaged, the costs incurred will be the responsibility of the municipality, contractor or engineer, whoever will be responsible.	
Lina Mahlangu (071 381 8583)	Registration sheet filled in at the meeting on	Personally does not have a problem with the project, but wants to know what will happen to her should she need to move.	

	22/03/13		was sent to you circa 08th March 2013. You will be receiving the minutes thereof ASAP. Amongst the issues and concerns raised, wherein your help is needed, was the following: 1. Are any of the new pipelines going to traverse the houses, if so, how will the engineer or municipality deal with it? 2. Two other places in Hlalanikahle are overflowing with sewer, why are they not included in this scope of work? 3. The current overflow of sewer is mainly caused by sewer lines joined with stormwater drains, please recommend how this is going to be dealt with, so that the community can be informed accordingly. Kindly help address the
Jappie Msibi (073 7891521)	Public Meeting on 22/03/13	Indicated that the problem at one point in Ext 1 is due to a storm water pipe being joined with the sewer line which causes it to overflow, hence affecting the health of the community.	
		Explained the project once more assuring everyone that the project is an upgrade, the new pipes are unlikely to traverse anyone's yard/house	
Ntombifuthi Zunguza (079 7108310)	Public Meeting on 22/03/13	The current pipes traverse the middle/centre of their yards/houses, so should the project go ahead they want to be permanently moved to better places.	
Margarette Mathibela (073 8294088)	Public Meeting on 22/03/13		
Emily Msibi (076 5685759)	Public Meeting on 22/03/13		
Martha Ntuli (072 3611134)	Public Meeting on 22/03/13	Asked where will they be relocated and who will be liable for the costs if their houses are demolished.	
		The current pipes traverse the middle/centre of their yards/houses, so should the project go ahead they want to be permanently moved to better places.	
Moses Skhosana (078 9555471)	Public Meeting on 22/03/13	Noted he doesn't want a repeat of what happened with the existing pipes (that the pipes traverse his house/yard without his concern).	
Jabu Nkambule (078 7591696)	Public Meeting on 22/03/13	Says he will be very happy for the project to go ahead, provided the pipes don't traverse his house.	
Abel Selala (076 270 3150)	Personally during delivery of BID, 05/03/13.	Concerned about the bursting of pipes and how the pipes will be assembled as they have previously had a problem of not being able to extend their houses because they don't know where and how the pipes go.	

			abovementioned. Your assistance will greatly be appreciated. Regards" The engineer responded on 08/04/2013: Good day Hle, 1. No pipelines will be crossing through houses. 2. Budget constrain - Our appointment is limited to the upgrading of the existing bulk collector lines. purpose of the project is to improve the capacity of the collector bulk lines only excluding the reticulation network and house connections. 3. We are not aware of this situation, could you please specify these areas for us so that we can investigate.

			Regards Khehla Ngomane
Vuledzani Thanyani-Eskom Magawatt (0737636629 thanyav@eskom.co.za)	Email to Hlengile on 13/03/13	Hi Hlengile Kindly include me in your list of Interested and Affected Parties, We are currently investigating if your infrastructure will have an impact on our current or future infrastructure Regards	Response on the same date: Ok, will do, thank you Vuledzani.
	Email to Vuledzani on 22/04/13	Good morning Vuledzani, As per the email below, kindly give me feedback on how far you are with the investigation and what the outcome is/was. Thank you!	Response on the same date: Hi Hlengile Please send me the shapefiles of your proposed infrastructure corridor if you have them, Kmz files might be fine as well Regards
		Hi Vuledzani, Attached are the only images I have, kindly let me know if you need more.	Response on 23/04/13 Hi Hlengile Please note that Eskom is in a process of deviating two power lines in that vicinity, attached are our proposed plans, the An Environmental Authorization for the work has been issued and work will commence soon. To the map you sent, it looks like your infrastructure will be very close to our proposed lines. See attached drawings.
	Email to Vuledzani on 23/04/13	Good morning Vuledzani, Thank you for the information. Previously the client submitted an application for a wayleave to Annelien Pretorius who would	

		then forward the application to the relevant and responsible person. Kindly inform me who to submit an application for a wayleave to and the type of information/details that the application needs. Thank you in advance!	
Irene Khoza (072 591 5328)	Personally during delivery of BID, 05/03/13.	Would be very happy if the project succeeds because currently the leaks sometimes run as far as her door step, making it impossible for her children to play outside.	Noted.
Mavis Ncheba (072 992 5628)	Personally during delivery of BID, 05/03/13.	How soon will this project start? She cannot wait for such an improvement.	As soon as the Department approves.
Nomcebo Shange (076 467 8785)	Personally during delivery of BID, 11/03/13	Would be very happy should the project succeed.	Noted
Zodwa Mahlangu (076 523 3538)	Personally during delivery of BID, 11/03/13	Has no problem with the project and hopes it succeeds.	Noted.
Dumisani Mavundla (072 303 1685)	Personally during delivery of BID, 11/03/13	The project can go ahead.	Noted.
Paulos Mashiloane (072 071 2298)	Personally during delivery of BID, 05/03/13.	The municipality never delivers on time, so he is scared for his children once excavation has commenced and worried about the access road to his house once the soil has been stockpiled.	Noted.
Martha Mabuza (072 361 1341)	Personally during delivery of BID, 05/03/13.	Concerned about their electricity lines that go through the proposed route. “Says the sewage pipes are not for them, so why do they have to suffer. How will the disabled residents get to the meeting? There is an unpleasant smell now.”	Noted.
Moses Mtsweni (072 341 8029 msvermaak@telkomsa.net)	Faxed registration sheet on 14/03/13	“If it can be a good place we need water and toilets, etc.”	Noted.
Jappie Msibi (073 7891521)	Public Meeting on 22/03/13	Suggested that Thami Khumalo (councillor of ward 4) be consulted so he can hold a separate meeting and explain the project again to the Ward 4 community.	It will not be necessary as by the end of the meeting, everyone understood the aim of the project.
Miss Mafokane (076 070 1807)	Personally during delivery of BID, 05/03/13.	Does not have transport to attend the meeting. As it is there is a foul smell because of the sewage leaks, hence the children have no ground to play on. They don’t have electricity. How come the	Noted.

		municipality cannot provide clean and safe drinking water, but there is water to maintain a sewage system? Is not comfortable with the meeting being held at the Police station, because the parties concerned will be scared to voice their concerns. Wants to know where/how the soil will be stockpiled and if it won't obstruct the road to school. Does not want any sewage pipes, she wants development first and says the municipality never delivers anyway. Wants to know where the point of discharge will be.	
Mxolisi Malinga (073 771 7072)	Public Meeting on 22/03/13	Wants to know where the outflow/endpoint of the sewage will be.	The pipes will be connected to an existing outfall sewer.
Isaac Deklerk (079 2878661)	Public Meeting on 22/03/13	Mentioned that he would be very happy if the project went ahead because the manhole is in his yard is overflowing.	Noted.
Lucas Sithole (078 9712947)	Public Meeting on 22/03/13	Wanted to know why their Ward Councilor (Thami Khumalo) was not present, as he should and must be present at such meetings	Hlengile explained that he did say he would come to the meeting during the telephone conversation they had on Friday, 15th March 2013.
Jenna Lavin-SAHRA (021 426 4502 jlavin@sahra.org.za)	Email to Hlengile on 15/03/13	Dear Hlengile, Thank you kindly for your Background Information Document (BID) for a Basic Assessment (MDEDET Ref No.: 17/2/3N-277) and a GA/WUL Application to construct the Hlalanikahle Sewer Network, Emalahleni Local Municipality, Nkangala District Municipality, Mpumalanga Province. This application triggers Section 38(8) of the NHRA (Act 25 of 1999) and as such, SAHRA is a commenting authority and must be kept informed. In order to comply with Section 38(8) of the NHRA, SAHRA requires that you load the application onto our digital heritage management system - SAHRIS. SAHRA has recently migrated all of its applications to the	Ecoleges registered the project and loaded all the relevant documents onto SAHRIS on the 23rd April 2013.

		national online heritage management system, SAHRIS. Please register on SAHRIS and upload all relevant documents for this case to the system. The information on this web page http://www.sahra.org.za/sahris will provide you with the tools and information you require to register with SAHRIS and make an application to SAHRA. Please see the attached letter distributed in February in this regard. Many thanks for your cooperation.	
	Email to Shaun on 24/04/2012 (Final Comment)	Part of the letter that was attached to the email: "…It is unlikely that any significant impacts on heritage resources will result from the proposed development as the area has been previously disturbed. All formal and informal cemeteries and burials must be left *in situ* and not be disturbed. If it is not possible, a permit must be applied for in terms of Section 36 of the NHRA (Act 25 of 1999), and is subject to mandatory public consultation…"	

Annexure J: Copies of Comments Received

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure K: Meeting minutes

HLALANIKAHLE SEWER NETWORK, (MDEDET REF NO. 17/2/3N-227)
Minutes for the site meeting

Venue:	Hlalanikahle (Vosman) Police Station
Date:	22nd March 2013
Time:	10h00
Minutes prepared by:	Hlengile Mtsweni of Ecoleges Environmental Consultants
Minutes reviewed by:	All attendee's with email addresses

1. INTRODUCTION

- Hlengile Mtsweni introduced herself as the EAP appointed to undertake the BA on behalf of Nkangala District Municipality.
- Hlengile Mtsweni gave a brief explanation of the nature and extent of works to be carried out as a part of the Hlalanikahle Sewer Network Project.

2. ATTENDANCE & APOLOGIES

- The Attendance Register was distributed. (See attached attendance register for all attendee's). Only those mentioned in the Minutes are tabled below.
- No apologies were received.

Company/Authority	Representative	Initials	Contact Number	Email
Ecoleges	Hlengile Mtsweni	HM	083 6447179	hlengile@ecoleges.co.za
Ecoleges	Shaun MacGregor	SM	083 9811031	shaun@ecoleges.co.za
Ecoleges	Neil van Rooyen	NR	083 6447179	neilvanrooyen@live.co.za
Hlalanikahle Community	Lucas Sithole	LS	078 9712947	
Hlalanikahle Community	Meisie Ndlovu	MN(1)	082 4067682	
Hlalanikahle Community	Jappie Msibi	JM	073 7891521	jmsibi25@gmail.com
Hlalanikahle Community	Martha Ntuli	MN(2)	072 3611134	
Hlalanikahle Community	Ntombifuthi Zunguza	NZ	079 7108310	
Hlalanikahle Community	Margarette Mathibela	MM(1)	073 8294088	
Hlalanikahle Community	Emily Msibi	EM	076 5685759	
Hlalanikahle Community	Moses Skhosana	MS	078 9555471	
Hlalanikahle Community	Mxolisi Malinga	MM(2)	073 771 7072	xmxolisi@gmail.com
Hlalanikahle Community	Jabu Nkambule	JN	078 7591696	
Hlalanikahle Community	Isaac Deklerk	ID	079 2878661	

3. IDENTIFY OTHER POTENTIAL I&APs

- LS wanted to know why their Ward Councilor (Thami Khumalo) was not present, as he should and must be present at such meetings. Hlengile explained that he did say he would come to the meeting during the telephone conversation they had on Friday, 15th March 2013.
- MN(1) wanted to know if the Municipality knows about this project and why they are not there. HM noted that the local and district municipalities were informed via email on the 08th March 2013.

4. BRIEF DESCRIPTION OF PROJECT

- Shaun MacGregor described the project.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Four new Sewer Collector Lines will be constructed as follows

- A new 200mm (OD) sewer collector line, approximately 250m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
- A new 200mm (OD) sewer collector line, approximately 200m long, will be constructed from an existing manhole to an existing 500mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
- A new 200mm (OD) sewer collector line, approximately 40m long, will be constructed from an existing manhole to an existing 800mm OD outfall sewer line. The design throughput is $10ls^{-1}$.
- A new 355mm (OD) sewer collector line, approximately 550m long, will be constructed from Hlalanikahle extension 10 & 11 to an existing 800mm OD outfall sewer line. The design throughput is $99.2ls^{-1}$.

Manholes will be constructed at key points along the proposed collector lines. Whilst alternatives are being investigated, no reasonable or feasible alternatives existed at the time of this advertisement.

SM showed JM and MN(1) (ward councilors), where exactly on the map the proposed lines will be.

5. OPEN FLOOR FOR QUERIES AND CONCERNS

- JM indicated that the problem at one point in Ext 3 is due to a storm water pipe being joined with the sewer line which causes it to overflow, hence affecting the health of the community.
- JM explained the project once more assuring everyone that the project is an upgrade, the new pipes are unlikely to traverse anyone's yard/house.
- JM suggested that Thami Khumalo (councilor of ward 4) be consulted so he can hold a separate meeting and explain the project again to the Ward 4 community.

- MN(1) wanted to know why the councilors were not consulted.
  Hlengile explained that Ecoleges did not know that councilors were supposed to be consulted separately from the public/community and thanked her for the advice.
- MN(1) mentioned that 115 stands are not connected to a sewer line because not all stands were surveyed in Ward 1. MN(1) also indicated that Ward1 lacks a sewage outline.
- MN(1) explained to the attendee's that the map is not as precise as it should be, so most of the concerns are not valid because houses/yards may not be affected by the proposed project. She clarified that this project has nothing to do with housing and that this is in fact an advantage as most stands need the sewer line before building houses in order to avoid such complications in future.

- ID mentioned that he would be very happy if the project went ahead because the manhole is in his yard is overflowing.

- MN(2), NZ, MM(1) and EM said the current pipes traverse the middle/centre of their yards/houses, so should the project go ahead they want to be permanently moved to better places.

- MS noted he doesn't want a repeat of what happened with the existing pipes (that the pipes traverse his house/yard without his concern).

- MN(2) asked where will they be relocated and who will be liable for the costs if their houses are demolished.

- LS thanked MN(1) for clarifying the purpose of the meeting and admitted that some if not most of the attendee's misunderstood the platform.

- MM(2) wants to know where the outflow/endpoint of the sewage will be.

- JN says he will be very happy for the project to go ahead, provided the pipes don't traverse his house.

6. GENERAL

- Everyone was thanked for their participation. Some of the attendee's completed registration forms.

7. CLOSURE

- The meeting was closed.

MEMBERS: J.A. Bowers (M. Tech.: Nat. Con., Pr.Sci.Nat.) & S.D. MacGregor (MSc.,Pr.Sci.Nat.)
Reg: 2006/023163/23

Annexure L: Meeting register

Annexure M: Proof of submission/delivery of the draft report to State Departments/Organs of State