



## **DRAFT BASIC ASSESSMENT ENVIRONMENTAL REPORT FOR THE PROPOSED WATERBORNE SEWER PIPELINE AND ASSOCIATED INFRASTRUCTURE AT SUN CITY, LOCATED IN MAYFLOWER VILLAGE, MPUMALANGA PROVINCE**

**Report for:** Department of Rural Development and Land Reform

**DEA Ref:** 14/12/16/3/3/1/1379

**Date:** March 2015



**rural development  
& land reform**

Department:  
Rural Development and Land Reform  
**REPUBLIC OF SOUTH AFRICA**



# BASIC ASSESSMENT REPORT

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## environmental affairs

Department:  
Environmental Affairs  
REPUBLIC OF SOUTH AFRICA

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**File Reference Number:**

**Application Number:**

**Date Received:**


Basic assessment report 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.

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### Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
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8. No faxed or e-mailed reports will be accepted.
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12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

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14. Two (2) colour hard copies and one (1) electronic copy of the report must be submitted to the competent authority.
15. Shape files (shp) for maps must be included on the electronic copy of the report submitted to the competent authority.

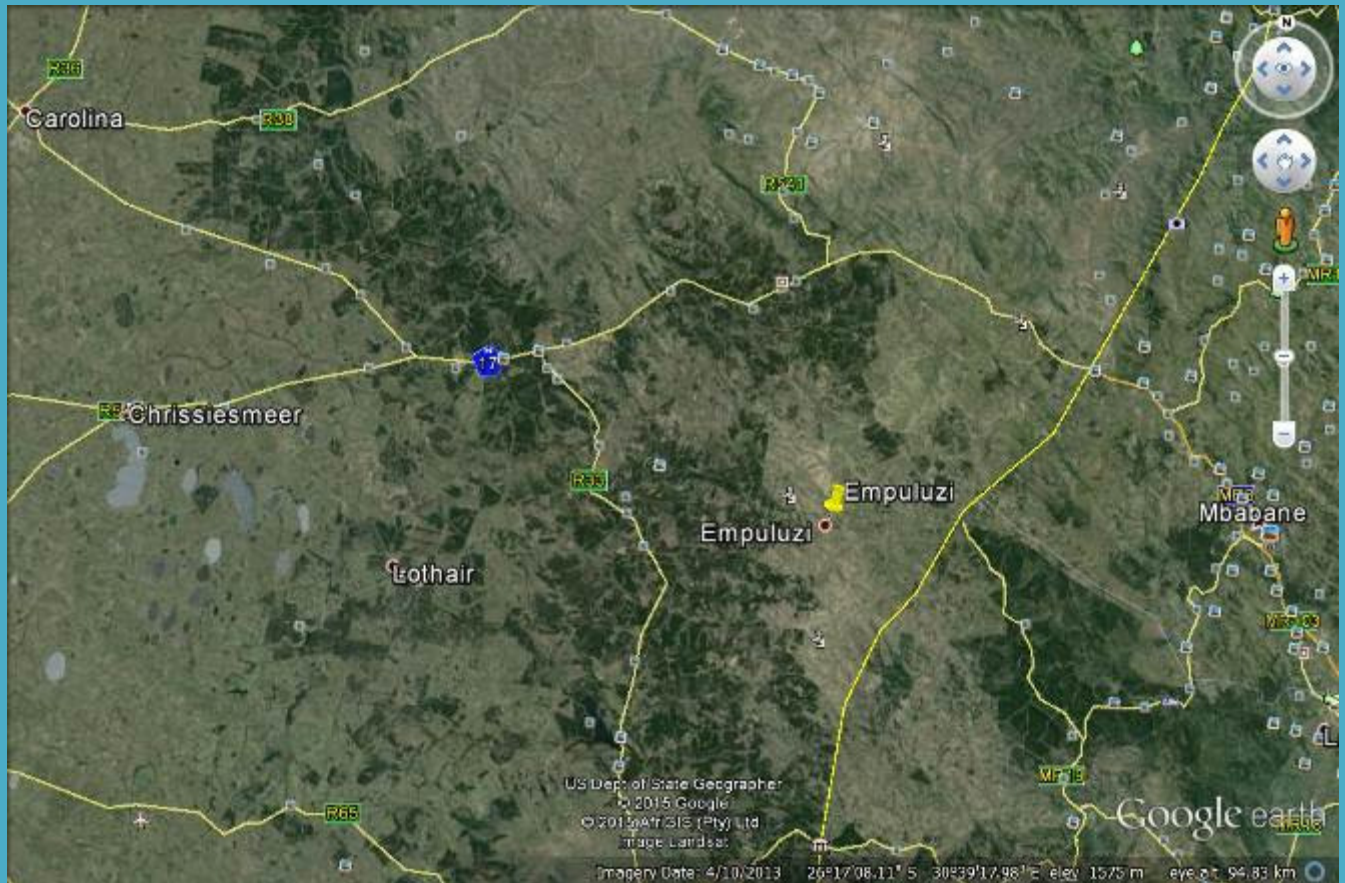
**SECTION A: ACTIVITY INFORMATION**

Has a specialist been consulted to assist with the completion of this section? YES    
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

**1. PROJECT DESCRIPTION**

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

The Department of Rural Development and Land Reform (DRDLR), is proposing to construct a new waterborne sewer pipeline and associated infrastructure in an area known as Sun City, Mayflower Village, Empuluzi, which is located within the Albert Luthuli Local Municipality, approximately 60km east of the Chrissiesmeer Central Business District (refer to Figure 1). The proposed project will utilise a combination of 110 mm and 160 mm uPVC HD class 34 pipes.



**Figure 1. Aerial Photograph (source: Google Earth of the Study Area)**

The proposed project will entail the following main components:

- Construction of internal waterborne sanitation services and pipelines for Sun City A and B.
- Bulk sanitation infrastructure, which includes the collection of sewage in a large diameter pipeline for transportation to the waste water purification plant.
- Re-sizing of the existing bulk infrastructure to accommodate additional flows from Sun City A and B.
- An assessment and minor upgrade of the existing Waste Water Treatment Plant (WWTP) to accommodate the additional sewage flow from the planned development. This will entail the construction of additional maturation ponds.

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- Construction of a concrete sump (mini pump-station) and a bulk rising main pipeline from Sun City A to convey effluent from Sun City A and B to the existing bulk service pipeline across the Empuluzi River.

### **1. Scope of Work for Upgraded Waterborne Sanitation for Sun City A and B**

- Clearing and grubbing of the proposed pipeline routes;
- Excavations for the proposed sewer lines of all size classes;
- Pipe bedding utilizing imported materials from commercial sources;
- Construction of 1 meter diameter pre-cast concrete manholes;
- Erf connections for all households in accordance with SANS 1200 and in accordance with special 2 and 4 legged erf connections; and
- Testing of the pipelines and manholes.

### **2. Scope of Work for the Construction of a Concrete Sump and Bulk Rising Main Pipeline**

- Excavation of proposed bases for the raised pipe-bridge which will support all pipeline classes. The size of the sump will be confirmed upon the completion of the final design;
- The importing of suitable material from commercial sources for founding levels;
- The construction of a concrete sump which is 15m (L) x 9m (W) x 4,5m (D) and includes casting of 30 Mpa concrete for bases, 250mm thick walls (both internal and external) and a surface bed slab;
- Installation of one duty and one standby submersible pumps within the concrete sump;
- Construction of an overflow (Emergency Storage Facility);
- Construction of a new rising main pipeline, which will include the following components:;
  - Excavations for sewer pipelines of all classes;
  - Pipe bedding utilising imported material from commercial sources; and
  - Laying, jointing and bedding of proposed sewer pipelines utilising a 110 mm uPVC HD Class 34m of pipeline in accordance with DWS standards.

### **3. Scope of Work for the Construction of new Ponds at Mayflower Waste Water Treatment Works Based on Effluent Being Generated by Sun City Development**

- Clearing and grubbing for the proposed ponds;
- Bulk excavation/earthworks of proposed ponds in all classes. Size of the ponds to be confirmed upon completion of the final design; and
- The importing of suitable material from commercial sources to line off the pond (if required).





Figure 2: Typical sump (mini pump-station) illustration (source: <http://vomagoya.jimdo.com>).



Figure 3: Typical Sewer Pond illustration (Source <http://www.kentcitymi.org>).



Figure 4: Typical uPVC pipes (source: <http://1312.bd.all.biz>).

#### 4. Description of the Receiving Environment

##### 4.1. Climate

Chrissiesmeer which is the nearest town of size to Empuluzi receives about 649mm of rainfall per year, with most rainfall occurring during summer. Chrissiesmeer receives its lowest rainfall (1mm) in July and its highest (117mm) in December (refer to Figure 4). The average midday temperatures range from 15°C in June to 23°C in January (refer to Figure 5). The region is the coldest during June when the temperatures drop to 0.4°C on average during the night (refer to Figure 6) (SA Explore, 2000-2014). These conditions should be factored into final design and construction methodologies.

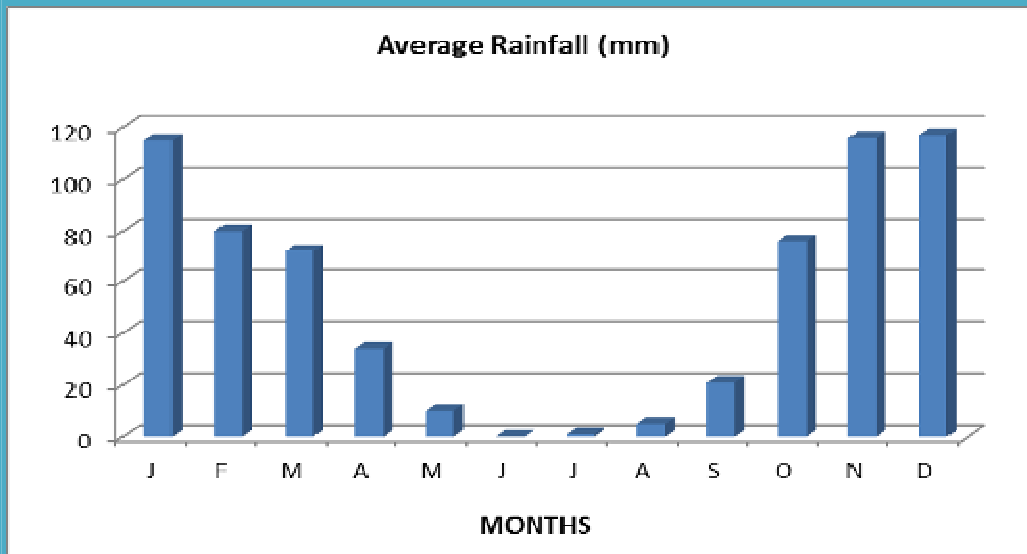


Figure 5: Average Rainfall (Source: SA Explore, 2000-2014).

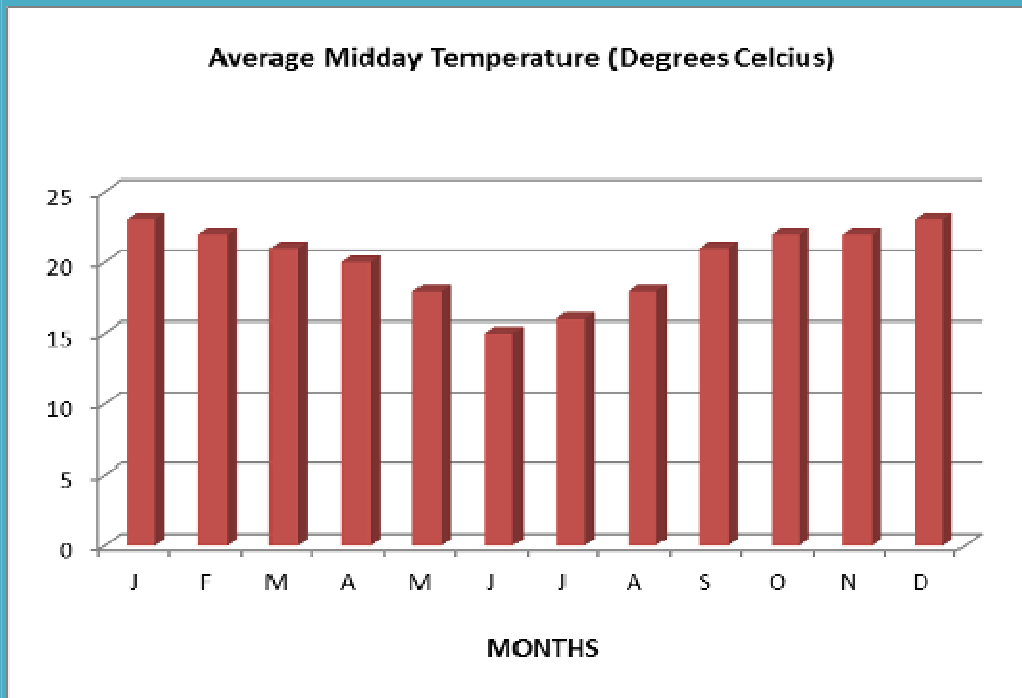


Figure 6: Average Midday Temperature (Source: SA Explore, 2000-2014).

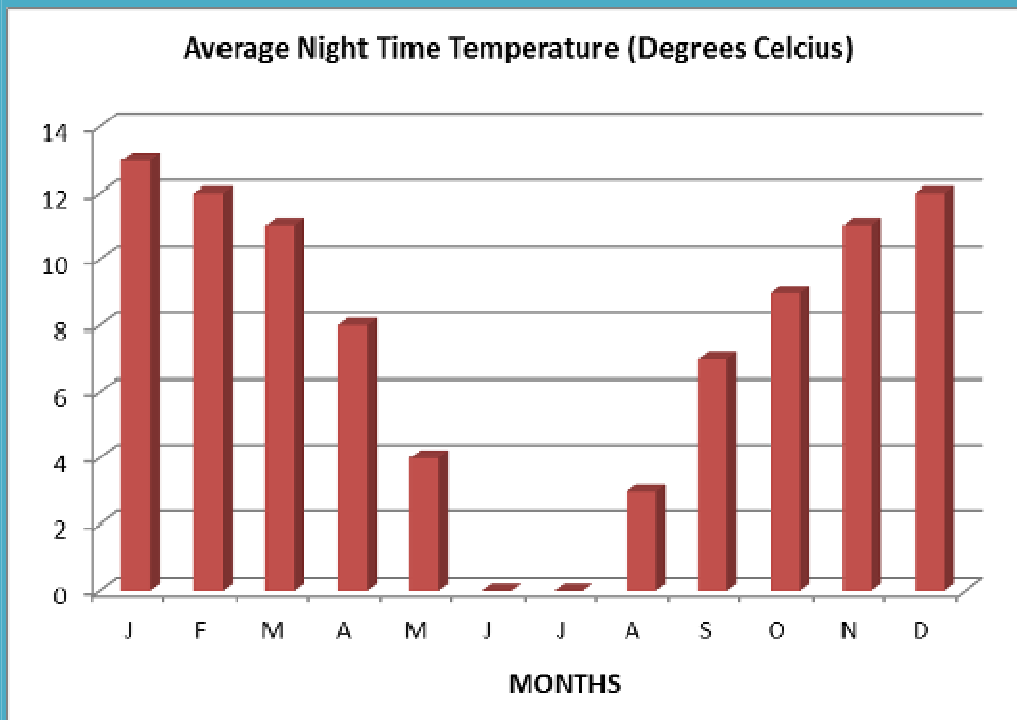


Figure 7: Average Night-time Temperature (Source: SA Explore, 2000-2014).



## 4.2. Ecology

### 4.2.1. Vegetation of the Study Area

The study area falls within the KaNgwane Montane Grassland (Gm 16) vegetation unit (Mucina & Rutherford 2006). The KaNgwane Montane Grassland (Gm 16) vegetation unit is distributed across Mpumalanga and Swaziland, and marginally into northern Kwazulu-Natal. KaNgwane Montane Grassland (Gm 16) occurs along the gentle slopes of the Escarpment, from the Phongolo Valley in the south, northwards to the Usutu Valley and to the uppermost Lomati Valley near Carolina, including the western grassland areas of Swaziland (refer to Figure 8). Altitude varies between 880-1 740 m with the altitude of the development site being 1 338 – 1421 m. The vegetation structure is comprised of a short, closed grass layer with many forbs, and a few scattered shrubs on the rocky outcrops (Mucina et al. 2006). The major land-use surrounding the site is residential and commercial, as well as small-scale vegetable crop farming and livestock grazing (cattle and goats) within secondary succession grasslands (old lands).

KaNgwane Montane Grassland (GM 16) is classified as a Vulnerable vegetation unit with only 0.4 % protected within any formally proclaimed nature reserves (Malalotja, Nooitgedacht Dam and Songimvelo). A number of private conservation areas protect small patches of this unit. It is well suited for afforestation and 30% has already been converted to plantations of alien trees. A further 6% is under cultivation. Erosion potential is low except along the channeled valley bottom wetlands. The embankments are heavily eroded by uncontrolled livestock drinking and grazing activities as well as informal sand mining activities. Conservation target is 27% conserved (Mucina & Rutherford 2006).

### 4.2.2. Transformed Secondary Succession Grassland (Fallow Lands)

The transformed and degraded secondary succession grasslands comprise the largest component of the vegetation within the Mayflower bulk sewerage project development area. The area consists of existing (Mayflower) residential houses, informal shacks and small-scale agricultural fields (old and current) that are mostly located on the mid-slopes as well as grassland plains. As a result, the natural vegetation has become degraded and is mostly transformed. The grassland areas are currently used for grazing purposes and are dominated by the anthropogenic grasses *Cynodon dactylon*, *Digitaria* spp., *Chloris virgata*, *Sporobolus africanus*, *Panicum maximum*, *Cymbopogon caesius*, *Eragrostis* spp., *Imperata cylindrica*, *Hyparrhenia hirta* and *Melinis repens*. The grasses cover approximately 70-80% of the area and the forbs 20-30% (mainly weedy and alien invasive species). Forbs are dominated by pioneer weedy plant species such as Tall Fleabane (*Conyza albida*\*), Flax-Leaf Fleabane (*Conyza bonariensis*\*), Common Black jack (*Bidens pilosa*), Tall Khaki weed (*Tagetes minuta*\*) Mexican Poppy (*Argemone ochroleuca*\*), *Verbena bonariensis*\*, *Ambrosia artemisiifolia*, *Ageratum houstonianum*\*, *Conyza bonariensis* and *Parthenium hysterophorus*, as well as pioneer grass species such as Rhodes Grass (*Chloris gayana*), Crab finger-Grass (*Digitaria sanguinalis*) Weeping Love Grass (*Eragrostis curvula*), Natal red-Top (*Melinis repens*), Common Buffalo Grass (*Panicum maximum*) and Couch Grass (*Cynodon dactylon*).

The vegetation within the granite rocky outcrops comprises rupicolous species such as *Acacia caffra*, *Cussonia paniculata*, *Ficus ingens*, *Diospyros lycoides*, *Gymnosporia hetrophylla*, *Myrsine africana*, *Searsia discolor*, *Aloe* sp. and *Asparagus cooperi* and the lithophytic fern *Selaginella dregei*. The proposed sewer alignments bisects a degraded section of a granite rocky outcrop.

The vegetation within the channeled valley bottom has been historically transformed and degraded due to surrounding anthropogenic activities including increased siltation and sedimentation due to poor soil conservation in the adjacent hillslopes as well as nutrient enrichment (eutrophication) and the removal of vegetation during ploughing of lands within the seasonal and temporary wet zones. The site has been historically annually ploughed and old fallow lands are dominated by secondary succession grasses (*Aristida junciformis* subsp. *junciformis*, *Imperata cylindrica*, *Cynodon dactylon*, *Cynodon nlemfuensis*, *Eragrostis curvula*, *Digitaria eriantha*, *Poa annua*\*), pioneer weedy plant species as well as remnant patches of hygrophilous sedges (*Mariscus solidus*, *Fuirena hirsuta*, *Eleocharis dregeana*, *Mariscus solidus*, *Pycreus polystachyos*, *Cyperus denudatus*).

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A few geophytic herbs namely Candelabra Flower (*Brunsvigia radulosa*) were observed adjacent to the channeled valley bottom wetland. Oblique-leaved Sorrel Oxalis *obliquifolia*, *Wahlenbergia krebsii*, Stalk-flowered Pelargonium (*Pelargonium luridum*) were observed within the moist grassland or seepage wetland. The riparian zone of the adjacent Mpuluzi River has become degraded with alien invasive tree species, with mainly Black Wattle (*Acacia mearnsii*\*), Saligna Gum (*Eucalyptus grandis*\*), Syringa (*Melia azedarach*\*) White Mulberry (*Morus alba*\*) and Jacaranda (*Jacaranda mimosifolia*\*) present and signs of extensive bank erosion and slumping also evident.

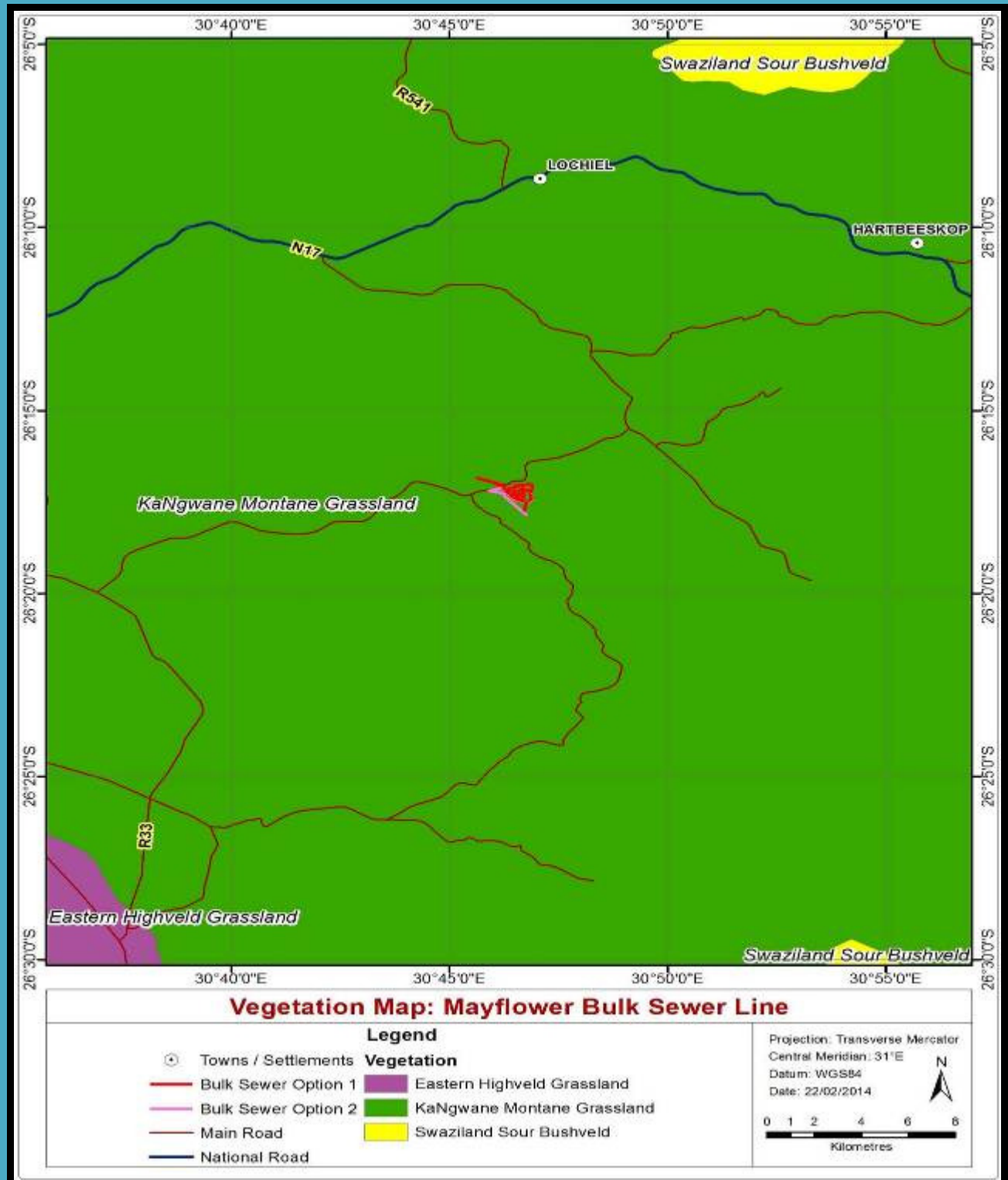


Figure 8: Vegetation of the Study Area

Source: (adapted from Mucina et al. 2006)

4.2.3. Fauna of the Study Area

The preliminary faunal survey focused mainly on mammals, birds, reptiles and amphibians of the study area. The survey focused on the current status of threatened animal species occurring, or likely to occur, within the Mayflower bulk sewer project study area, describing the available and sensitive habitats, identifying potential impacts resulting from the development and providing mitigation measures for the identified impacts.

**Livestock**

Cattle were observed grazing within the valley bottom wetlands. Their grazing and trampling activities result in the compaction and erosion of hydric soils and damage to the hygrophilous vegetation. However, the opportunistic feeding patterns of goats can have a severe impact on both the composition and productivity of this ecoregion. In addition, goats are known to be more destructive than cattle at higher stocking densities (Skead 1988). High livestock densities also pose considerable threat to wildlife, since high numbers of domesticated animals generally cause a displacement of game, as there is less suitable habitat available. Furthermore, wild predators and scavengers such as the Black-backed Jackal, Caracal, Leopard and the Cape Vulture have been eradicated by livestock farmers who see these animals as a threat to their livelihoods. Poisoned carcasses are often used for this purpose; this method is indiscriminate and therefore poses a considerable threat to all predators and scavengers; especially the threatened Cape Vulture. Poaching and illegal hunting (dogs) are further reducing the remnant faunal populations.

**Amphibians**

Amphibians are an important component of South Africa’s exceptional biodiversity (Siegfried 1989) and as such worthy of both research and conservation effort. This is made additionally relevant by international concern over globally declining amphibian populations, a phenomenon currently undergoing intensive investigation, but as yet is poorly understood (Wyman 1990; Wake 1991). Amphibians have declined dramatically in many areas of the world. These declines seem to have worsened over the past 25 years and amphibians are now more threatened than either mammals or birds, though comparisons with other taxa are confounded by a shortage of reliable data. The frog species recorded on the actual site or are likely to occur on the site is outlined in Table 1.

**Table 1. List of Frog Species Occurring in the Study Area According to FrogMAP.**

Family	Common name	Genus	Species	Red list category	Atlas region endemic
Brevicipitidae	Mozambique Rain Frog	<i>Breviceps</i>	<i>mossambicus</i>	Least Concern	
Bufonidae	Guttural Toad	<i>Amietophrynus</i>	<i>gutturalis</i>	Least Concern	
Bufonidae	Raucous Toad	<i>Amietophrynus</i>	<i>rangeri</i>	Least Concern	
Hyperoliidae	Painted Reed Frog	<i>Hyperolius</i>	<i>marmoratus</i>	Least Concern	
Hyperoliidae	Yellowstriped Reed Frog	<i>Hyperolius</i>	<i>semidiscus</i>	Least Concern	
Hyperoliidae	Bubbling Kassina	<i>Kassina</i>	<i>senegalensis</i>	Least Concern	
Hyperoliidae	Rattling Frog	<i>Semnodactylus</i>	<i>wealii</i>	Least Concern	
Phrynobatrachidae	Snoring Puddle Frog	<i>Phrynobatrachus</i>	<i>natalensis</i>	Least Concern	
Pipidae	Common Platanna	<i>Xenopus</i>	<i>laevis</i>	Least Concern	
Pyxicephalidae	Drakensberg River Frog	<i>Amietia</i>	<i>quecketti</i>	Least Concern	Yes
Pyxicephalidae	Bronze Caco	<i>Cacosternum</i>	<i>nanum</i>	Least Concern	
Pyxicephalidae	Mountain Caco	<i>Cacosternum</i>	<i>parvum</i>	Least Concern	
Pyxicephalidae	Striped Stream Frog	<i>Strongylopus</i>	<i>fasciatus</i>	Least Concern	
Pyxicephalidae	Natal Sand Frog	<i>Tomopterna</i>	<i>natalensis</i>	Least Concern	

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### Reptiles

Reptile species that occur or are likely to occur in the 2630 BD QDGC (where the development site is located) according to South African Reptile Conservation Assessment's (SARCA) ReptiMAP and may therefore be present in the study area. Actual species lists will most likely contain far fewer species due to high levels of habitat transformation. Table 2 outlines species that are likely to occur in the study area.

**Table 2: Reptile Species Likely to Occur in the Study Area**

Family	Common name	Genus	Species	Subspecies	Red list category	Atlas region endemic
Agamidae	*Distant's Ground Agama	<i>Agama</i>	<i>aculeata</i>	<i>distanti</i>	Least Concern (SARCA 2014)	Yes
Atractaspididae	Black-headed Centipede-eater	<i>Aparallactus</i>	<i>capensis</i>		Least Concern (SARCA 2014)	
Colubridae	Boomslang	<i>Dispholidus</i>	<i>typus</i>	<i>typus</i>	Least Concern (SARCA 2014)	
Colubridae	Swazi Rock Snake	<i>Inyoka</i>	<i>swazicus</i>		Least Concern (SARCA 2014)	Yes
Colubridae	Cross-marked Grass Snake	<i>Psammophis</i>	<i>crucifer</i>		Least Concern (SARCA 2014)	
Elapidae	Rinkhals	<i>Hemachatus</i>	<i>haemachatus</i>		Least Concern (SARCA 2014)	
Gekkonidae	Van Son's Gecko	<i>Pachydactylus</i>	<i>vansoni</i>		Least Concern (SARCA 2014)	
Gerrhosauridae	Yellow-throated Plated Lizard	<i>Gerrhosaurus</i>	<i>flavigularis</i>		Least Concern (SARCA 2014)	
Leptotyphlopidae	Eastern Thread Snake	<i>Leptotyphlops</i>	<i>scutifrons</i>	<i>conjunctus</i>	Not listed	
Scincidae	Wahlberg's Snake-eyed Skink	<i>Afroablepharus</i>	<i>wahlbergii</i>		Least Concern (SARCA 2014)	
Scincidae	Montane Dwarf Burrowing Skink	<i>Scelotes</i>	<i>mirus</i>		Least Concern (SARCA 2014)	Yes
Scincidae	Cape Skink	<i>Trachylepis</i>	<i>capensis</i>		Least Concern (SARCA 2014)	
Scincidae	*Rainbow Skink	<i>Trachylepis</i>	<i>margaritifera</i>		Least Concern (SARCA 2014)	
Scincidae	*Speckled Rock Skink	<i>Trachylepis</i>	<i>punctatissima</i>		Least Concern (SARCA 2014)	
Scincidae	Variable Skink	<i>Trachylepis</i>	<i>varia</i>		Least Concern (SARCA 2014)	
Typhlopidae	Bibron's Blind Snake	<i>Afrotyphlops</i>	<i>bibronii</i>		Least Concern (SARCA 2014)	

## Avifauna/Birds

Forty-eight (48) bird species have been recorded from the 2615\_3045 pentad according to SABAP 2. Thirty-four (34) bird species were recorded during the brief field survey (total 14 hours). Species recorded during the field survey are common, widespread and typical of a disturbed grassland and riverine environment. The majority of bird species were recorded along the valley bottom wetlands and Empuluzi River. High levels of human disturbance as well as habitat transformation and degradation on the site and surrounding valley bottom wetlands and streams results in the disappearance of the more secretive or sensitive bird species. The majority of bird species were recorded from the moist grasslands adjacent to the valley bottom wetlands as well as along the Empuluzi River.

## Mammals

Several mounds of the African Mole rat as well as burrows of the Natal Multimammate Mouse were observed in the sandier sections adjacent to the valley bottom wetlands. Evidence of Water Mongoose (Latreille) as well as Cape Clawless Otters was observed along the Empuluzi River as well as the valley bottom wetlands. Vervet Monkeys were observed foraging adjacent to the Empuluzi River. A single Slender Mongoose was observed crossing an informal dirt access road which bisects the valley bottom wetland.

## **4.3. Heritage**

### 4.3.1. Regional Overview

The cultural landscape qualities of the region essentially consist of a rural setup. The human occupation is made up of pre-colonial elements consisting of limited Stone Age and Iron age occupation as well as later colonial components. A small component is urban.

### Stone Age

A number of very important sites dating to the Later Stone Age occur in the region. These sites are stratified, found in rock shelters and in most cases also have rock paintings. Such sites usually occur in outcrops close to rivers. The closest known rock art site to the development area is located to the west on the farm Theeboom. Sites containing San rock paintings are also known to exist about 20km to the south on the farm Syde 258IT.

### Iron Age

Sites dating to the late Iron Age occur in large numbers in the region. These are stone walled sites, and are probably related to the Koni people and dating to the period of 1650 onwards. These sites usually occur in areas where ridges and outcrops occur as stone, used for building material. Some sites are known to occur a distance to the west and north of the study area.

### Historic Period

The historic period started in the 1840s with farmers and traders entering the area. However, it was only after the discovery of gold in 1875 in the vicinity of Barberton that settlers entered the region in large numbers. A large number of old gold mines and prospecting activities resulted from these early mining activities, most of which would be older than 60 years. Other sites that might occur in the area would be old farmsteads and informal cemeteries.

The people occupying the area are of Swazi speaking origin and under the previous government were citizens of the KwaZulu-Natal Homeland. The 1963 version of the topocadastral map shows no development in the region except for what can be interpreted as farmsteads. Currently, the whole region has been subject to urbanization which would have destroyed any pre-colonial or early colonial heritage features that might have occurred in the past. The only heritage sites known to occur from the region are cemeteries, all of which



are located well outside the area of the proposed development area.

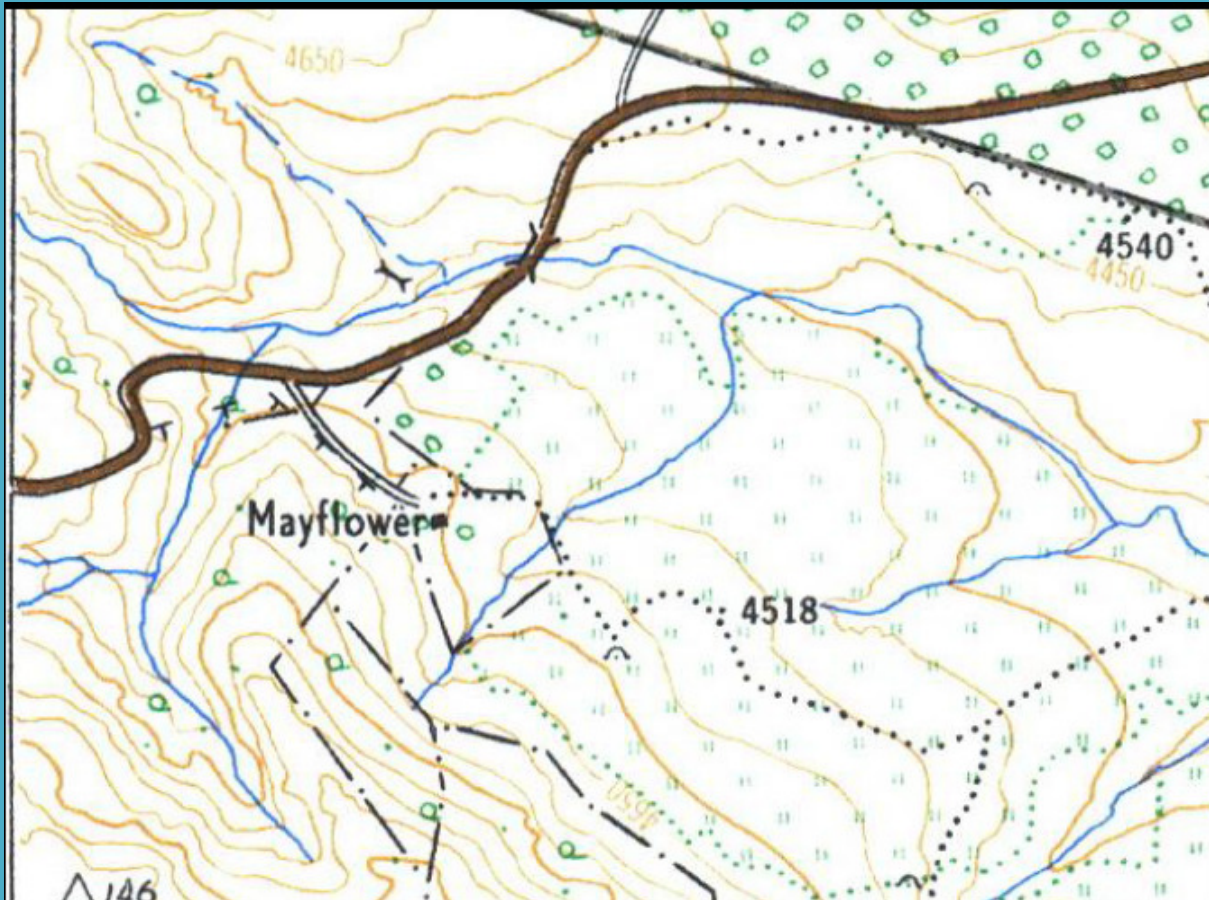


Figure 9: The Study Area in the early 1960s

#### 4.3.2. Identified Sites

The heritage sites which are known to exist in the broader study area are depicted in Figure 10 below.

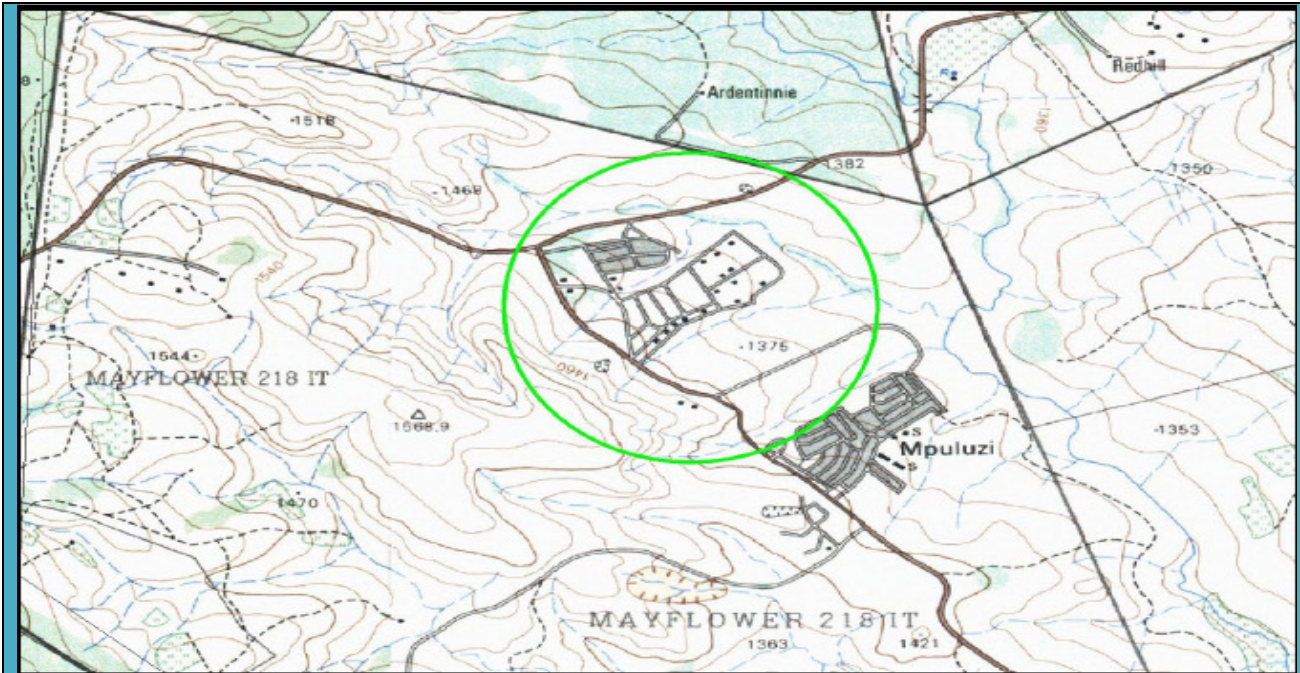


Figure 10: Heritage Sites of Significance Marked in Green.

## Stone Age

There were no sites or features and objects identified in the study area dating to the Stone Age.

## Iron Age

There were no sites or features and objects identified in the study area dating to the Iron Age.

## Historic Period

There were no sites or features and objects identified in the study area dating to the Historic Period.

## 4.4. Wetland Assessment

### 4.4.1. Macro Drainage Characteristics

The study area is located within the W55C quarternary catchment. This catchment is drained by the lower-most of three wider reaches of the EMPuluzi River within South Africa as it drains eastwards from the wider catchment divide between the Komati catchment (to the north) and the uSuthu River catchment (into which the EMPuluzi River falls). The EMPuluzi River is thus a tributary of the uSuthu River which eventually joins the Phongolo River to form the Maputo River which drains into the Indian Ocean in southern Mozambique. This quarternary catchment is located within the northern part of the Usuthu to Mhlatuze Water Management Area (refer to Figure 11).

### 4.2.2. Wetland (Surface Water) Occurrence and Crossings

A number of surface water crossings have been identified along both sewer alignment alternatives. These have been named according to the alternative (e.g. Alt1\_1) (Refer to Figure 12). Dominantly (> 40%) red and yellow, freely drained, apedal (= structureless) soils. Normally associated with high rainfall areas, where soils are subjected to moderate (= mesotrophic) to intense (= dystrophic) leaching of

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nutrients from the soil profile. Soils are thus mostly low in base elements (K, Ca, Mg, Na). A broad range of textures may occur.

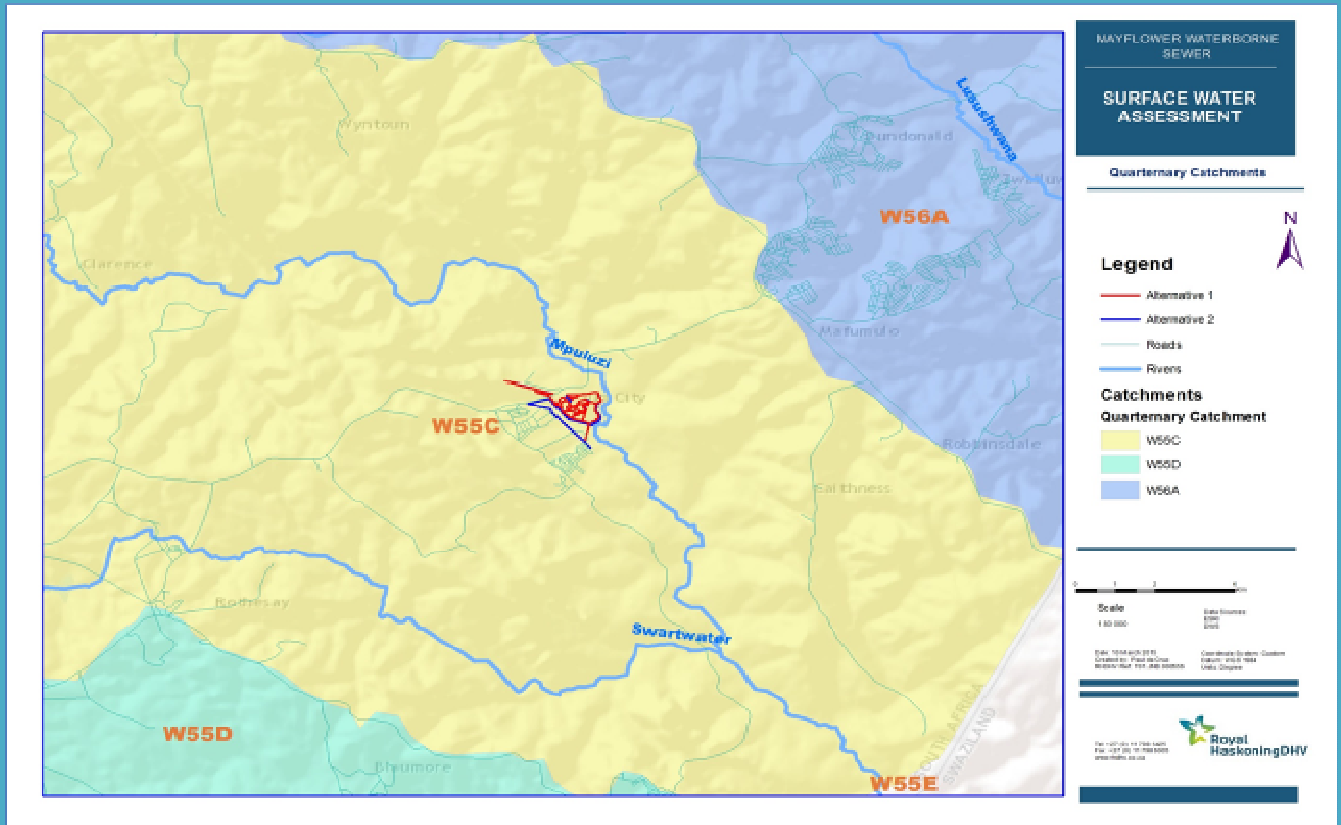


Figure 11: Quaternary catchments in the Study Area



Figure 12: Channelled Valley Bottom Wetland at the Alternative 1 crossing point



### Seeps

Two predominant types of surface water features were located in the study area. A number of Seep wetlands were encountered, being located within the terrain setting of sloping ground. Under the Ollis et al (2013) classification system, a seep is defined as: "A wetland area located on gently to steeply sloping land and dominated by colluvial (i.e. gravity-driven), unidirectional movement of water and material down-slope".

In seep wetlands water inputs are primarily via subsurface flows from the upslope catchment of the wetland. Water movement through the seep is mainly in the form of interflow, with diffuse overland flow (known as sheetwash) often being significant during and after rainfall events (Ollis et al, 2013). The slopes in the study area, although gentle is sufficient for the presence of colluvial processes that are associated with seep wetlands. Movement of water down the slope, rather than the deposition of water within the wetland, is the predominant hydrological driver. Figure 13 Seep wetland (Crossing Alt2) on sloping ground to the north of the valley floor drained by the tributary of the Mpuluzi near the stadium. Seep wetland upstream of the proposed alignment in the north-eastern part of the development site (refer to Figure 14).

Seeps are often associated with lithologies that cause groundwater to discharge to the surface, or are located in topographic positions that either cause groundwater to discharge to the land surface or rain-derived water to 'seep' down-slope as subsurface interflow (Ollis et al, 2013). In the case of the seep wetlands in the study area wetland, soils within the area are largely sandy in nature, thus being permeable and well-drained. The largest portion of the water movement in the landscape that is derived from precipitation enters the soil strata and moves with the slope as very shallow sub-surface flow (interflow). However in addition discharge of groundwater to the surface appears to be related to the presence of granite bedrock that may force groundwater to discharge to the surface.

The sub-categorisation of seeps in the study area relates to the nature of the outflow, with seeps either having channelled or without channelled outflow. The latter case applies, as in the case of most seep wetlands there is no distinct natural channel into which water flow through the wetland outputs into the downstream drainage system, although one seep wetland enter the Mpuluzi River valley floor and becomes an un-channelled valley bottom. In the case of the seep wetlands in the north-eastern part of the alignment, there is no channel that forms on the footslopes above the valley floor drained by the Mpuluzi River, rather surface water and sub-surface water feeds diffusely into the riparian corridor of the river that appears to be characterised by silty alluvial sediment.

The level 5 descriptor is of a wetland that is intermittently inundated but seasonally saturated. Due to the terrain setting of sloping ground sub-surface flow is likely to predominate, with standing water at the surface only occurring intermittently over the whole wetland during the wettest times of the year. However the wetland substrate is expected to be waterlogged for sufficient periods of time in the wet season (summer) to allow the development of anaerobic conditions typical of wetlands and to support a vegetation community consisting of grass and sedge species that typically favour seasonally moist conditions.

Seep wetlands were primarily encountered in the eastern and southern parts of the study area. An extensive series of seep wetlands was encountered in the north-eastern part of the development site on the western footslopes and start of the midslopes of the Mpuluzi River valley. An extensive seep wetland was encountered just to the east of the sports stadium (MF\_Alt1\_2) on the sloping ground to the west of the one of the narrow channelled valley bottom wetlands. Although not crossed by the proposed waterborne sewer, a similar extensive seep is located on the footslopes between the tributary of the Mpuluzi River and the sports stadium.

A number of direct points of groundwater seepage were noted in these seep wetlands, particularly in those along the eastern-most part of the alignment. Groundwater outflow from these springs was noted. In one instance (at crossing Alt2 ) a spring was located immediately adjacent to, and downslope of a granite outcropping suggesting that groundwater seepage is directly related to granite bedrock outcropping.



Figure 13: Seep wetland (Crossing Alt2) on sloping ground to the north of the valley floor drained by the tributary of the Empuluzi near the stadium.



Figure 14: Seep wetland upstream of the proposed alignment in the north-eastern part of the development site.



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

Detailed description of listed activities associated with the project	
Listed activity as described in GN R.544, 545 and 546	Description of project activity that triggers listed activity – if activities in GN R. 546 are triggered, indicate the triggering criteria as described in the second column of GN R. 543
GNR 544 Item 9: The construction of facilities or infrastructure exceeding 1000 meters in length for the bulk transportation of water, sewage or stormwater. (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more.	The proposed project entails the construction of a sewer pipeline and associated infrastructure which is approximately 2km in length.
No R 544 Item 11: The construction of: (i) canals; (ii) channels; (iii) bridges; (iv) dams; (v) weirs; (vi) bulk storm water outlet structures; (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; or (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.	The proposed project entails the construction of a sewer pipeline and associated infrastructure which is approximately 2km in length near a watercourse (Empuluzi River).

**2. FEASIBLE AND REASONABLE ALTERNATIVES**

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

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

Describe alternatives that are considered in this application as required by Regulation 22(2)(h) of GN R.543. Alternatives should include a consideration of all possible means by which the purpose and

## BASIC ASSESSMENT REPORT

need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether site or activity (including different processes, etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment. After receipt of this report the, competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent.

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

### a) DESCRIPTION OF ALTERNATIVES

In the case of linear activities:

#### PIPELINE ALTERNATIVES

##### Alternative:

##### Alternative S1 (preferred)

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

##### Latitude (S):

##### Longitude (E):

26°16'50.80"S	30°45'36.24"E
26°17'29.51"S	30°46'21.58"E
26°17'45.11"S	30°46'42.22"E

##### Alternative S2

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

26°16'50.80"S	30°45'36.24"E
26°17'29.51"S	30°46'21.58"E
26°17'45.11"S	30°46'42.22"E

### DESCRIPTION OF PIPELINE ALTERNATIVES

**Alternative 1** (marked in green) in **Figure 15**. As well as the pipelines, this alternative entails the construction of a concrete sump situated within Sun City A with an overflow pond for emergencies. The sump is situated at the lowest possible point taking into consideration any future developments within Sun City A and B. The nearest connection point is approximately 550m away in a southerly direction from Sun City A and is located parallel to the existing municipal road (Empuluzi D) from where it then flows in a southerly direction towards the WWTW. The horizontal alignment was fixed by the outlet of the sump and the inlet of the existing manhole whilst the number of horizontal bends was reduced to assist in the design. This alignment crosses the Empuluzi River once.

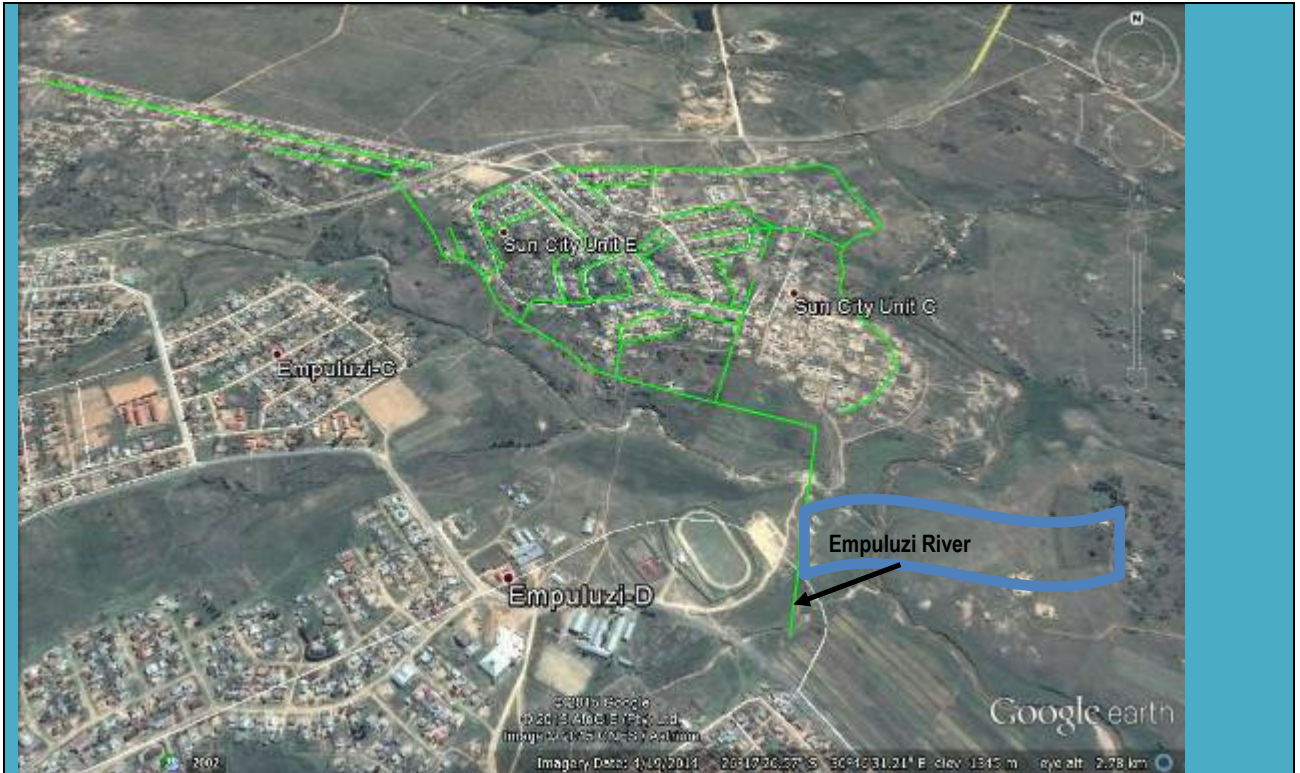


Figure 15: Site Layout Alternative 1

**Alternative 2** (marked purple) in **Figure 16**. This alternative also entails construction of a concrete sump situated within Sun City A with an overflow pond for emergencies. It then pumps the effluent for approximately 2km parallel to Sun City A, next to the provincial road and is then fixed to the concrete bridge over the provincial road. It then connects into the existing sewer network in Mayflower which is located on much higher ground than the original connection point for this project. This alignment crosses the Empuluzi River twice.



Figure 16: Site Layout Alternative 2

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

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

**e) No-go alternative**

If the proposed sewer pipeline and associated infrastructure are not constructed, the Albert Luthuli Local Municipality will not be able to provide the much needed basic amenities, such as sanitation, as per the National Planning Strategic Infrastructure Project rollout in order to expedite service delivery. Thus, the no go option is not preferred.

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

**3. PHYSICAL SIZE OF THE ACTIVITY**

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

or, for linear activities:

**Alternative:**

Alternative A1 (preferred activity alternative)

Alternative A2

**Length of the activity:**

1700m
2000m



**b) Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):**

Alternative:	Size of the site/servitude:
Alternative A1 (preferred activity alternative)	5000m <sup>2</sup>
Alternative A2	5200m <sup>2</sup>

**4. SITE ACCESS**

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

Describe the type of access road planned:

N/A

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

**5. LOCALITY MAP**

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

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

**6. LAYOUT/ROUTE PLAN**

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

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;



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

### **7. SENSITIVITY MAP**

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

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

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

### **8. SITE PHOTOGRAPHS**

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

### **9. FACILITY ILLUSTRATION**

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

10. ACTIVITY MOTIVATION

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

<b>1. Is the activity permitted in terms of the property's existing land use rights?</b>	YES	
The Albert Luthuli Local Municipality has secured and owns land for which the proposed project will be built.		
<b>2. Will the activity be in line with the following?</b>		
<b>(a) Provincial Spatial Development Framework (PSDF)</b>	YES	
<b>(b) Urban edge / Edge of Built environment for the area</b>	YES	
<b>(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).</b>		No
According to the draft Chief Albert Luthuli Integrated Development Plan 2014/2015, there is a huge backlog of sanitation service delivery which needs to be addressed by the municipality. Thus, the Department of Rural Development and Land Reform, in partnership with the municipality, are addressing this backlog through the proposed sewer pipeline project in the Sun City village.		
<b>(d) Approved Structure Plan of the Municipality</b>	YES	
<b>(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)</b>	YES	
<b>(f) Any other Plans (e.g. Guide Plan)</b>	YES	
<b>3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?</b>	YES	
<b>4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)</b>	YES	
The proposed development will be used to provide reliable sanitation services for the community of the Sun City village within the Albert Luthuli Local Municipality. This will also address community expectations in terms of service delivery.		

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<p><b>5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES		
<p>There are adequate existing municipal services to cater for and integrate with the project. In fact the proposed project is an addition to the current services rendered by the municipality.</p>			
<p><b>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</b></p>	YES	NO	Please explain
<p>The proposed project will form part of the infrastructure that has been planned for and will enable the municipality to render adequate sanitation services within its jurisdiction.</p>			
<p><b>7. Is this project part of a national programme to address an issue of national concern or importance?</b></p>	YES	NO	Please explain
<p>The objective of the National Development Plan for 2030 is for all South Africans to have social equity through expanded access to sanitation services within affordable tariffs and well-targeted and sustainable subsidies for needy households. Thus, the proposed project is aimed at fulfilling this objective by providing sanitation services to the residents of Sun City. It also forms part of the National Planning Strategic Infrastructure Project rollout.</p>			
<p><b>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</b></p>	YES	NO	Please explain
<p>There is an already existing Waste Water Treatment Works and bulk wastewater pipeline located in a southerly direction from Mayflower to which the proposed sewer pipelines will be connected.</p>			
<p><b>9. Is the development the best practicable environmental option for this land/site?</b></p>	YES		
<p><b>10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?</b></p>	YES		
<p><b>11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?</b></p>	YES		
<p><b>12. Will any person's rights be negatively affected by the proposed activity/ies?</b></p>	YES	NO	Please explain
<p>The proposed project will result in positive social impacts where reliable sanitation services will be enjoyed by the community of Sun City. It will promote good health practices within the community.</p>			
<p><b>13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?</b></p>	NO		
<p><b>14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?</b></p>	YES	NO	Please explain
<p>The project has been categorised as SIP 6: Integrated municipal infrastructure project.</p>			

## BASIC ASSESSMENT REPORT

<b>15. What will the benefits be to society in general and to the local communities?</b>	Please explain
The proposed project will assist in improving health and alleviating poverty and inequality in the country through the provision of reliable sanitation services to previously disadvantaged local communities as part of the National Development Plan.	
<b>16. Any other need and desirability considerations related to the proposed activity?</b>	Please explain
The proposed project will also result in employment and technical skills transfer to the local communities during the construction phase of the project.	
<b>17. How does the project fit into the National Development Plan for 2030?</b>	Please explain
The objective of the National Development Plan 2030 is for all South Africans to have social equity through expanded access to basic amenities such as sanitation services within affordable tariffs and well-targeted and sustainable subsidies for needy households. Thus, the proposed project is aimed at fulfilling this objective by providing improved sanitation services to the residents of Sun City.	
<b>18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.</b>	
<p>The proposed project has been undertaken according to section 24 of the National Environmental Management Act (NEMA) (No 107 of 1998) and the following aspects have been considered:</p> <ul style="list-style-type: none"> <li>• An Application for the Environmental Authorisation was lodged to the Department of Environmental Affairs in November 2014;</li> <li>• Potential environmental impacts and risks associated with the project have been identified and assessed according to their significance;</li> <li>• The public communities and local authorities (Interested and Affected Parties) were consulted from the onset and throughout the Basic Assessment process; and</li> <li>• The principles of NEMA such as the “polluter pays principle” have also been considered within the Environmental Management Programme for the project, where the Department of Rural Development and Land Administration and its appointed Contractors will be responsible for avoiding negative impacts and where not possible, mitigating or rectifying any damages caused in the environment.</li> </ul>	
<b>19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.</b>	
Refer to above section 18.	

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

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Constitution of South Africa (Act No 108 of 1996)	Protection of human rights and environment of the study area.	National & Provincial	1996
National Environmental Management Act (Act No 107 of 1998)(as amended)	Protection of the environment of the study area and surroundings.	National & Provincial	1998
National Environmental Management: Waste Act (Act 59 of 2008) ( as amended)	Protection of the surrounding environment through efficient waste management by the appointed Contractor.	National & Provincial	2008
National Environmental Management : Air Quality Act ( Act No 39 of 2004)	Protection of air quality of the study through dust minimisation and the application of dust suppression	National & Provincial	2004

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Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	measures.		
National Heritage Resources Act (No 25 of 1999)	Protection of heritage resources surrounding the study area and those uncovered during the development phase by reporting to the nearest heritage authority.	National & Provincial	1999
National Environmental Management: Biodiversity Act (10 of 2004)	Protection of biodiversity features and where not possible relevant permits will need to sort by the Contractor.	National & Provincial	2004
National Water Act ( Act No 36 of 1998)	Protection of water resources and where not possible relevant permits/licences will need to sort by the Contractor.	National & Provincial	1998
National Road Traffic Act (No 93 of 1996)	The Contractor will obey traffic laws by driving at minimal speed approved by local authorities.	National & Provincial	1996
Occupational Health and Safety Act (No 85 of 1993)	Protection of workers on site through provision of Personal Protective Equipment's; Training and other health and safety amenities.	National & Provincial	1993
All relevant Provincial regulations, Municipal bylaws	The Contractor will obey and abide by provincial and municipal bylaws which are related to the proposed project.	Provincial and Local	

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

#### a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES

NO

If YES, what estimated quantity will be produced per month?

m<sup>3</sup>

The quantities are not known at this stage. The EMPr will specify how construction waste must be handled and disposed of.

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

The construction waste will be collected by the appointed Contractor and disposed of at the Carolina Landfill Site.

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

At the Carolina Landfill Site.

Will the activity produce solid waste during its operational phase?

YES

NO

If YES, what estimated quantity will be produced per month?

m<sup>3</sup>

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

N/A

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

N/A



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

N/A

*If the solid waste (construction or operational phases) will not be disposed of in a registered landfill site or be taken up in a municipal waste stream, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?  YES  NO  
If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM: WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?  YES  NO  
If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM: WA must also be submitted with this application.

### b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?  YES  NO  
If YES, what estimated quantity will be produced per month?  m<sup>3</sup>  
Will the activity produce any effluent that will be treated and/or disposed of on site?  YES  NO  
*If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.*

Will the activity produce effluent that will be treated and/or disposed of at another facility?  YES  NO  
If YES, provide the particulars of the facility:

Facility name: N/A  
Contact person:  
Postal address:  
Postal code:  
Telephone: Cell: Fax:  
E-mail:

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

### c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?  YES  NO  
If YES, is it controlled by any legislation of any sphere of government?  YES  NO  
If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.  
If NO, describe the emissions in terms of type and concentration:

## BASIC ASSESSMENT REPORT

During the construction phase, dust and vehicular emissions will be released as a result of earth moving machinery and trucks transporting construction material. The emissions will however, have short term impacts on the immediate surrounding areas which can be easily mitigated and thus the authorisation of such emissions will not be required.

### d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

NO

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

### e) Generation of noise

Will the activity generate noise?

YES NO

If YES, is it controlled by any legislation of any sphere of government?

YES NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.

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

The movements of construction trucks, machinery and other construction activities will generate noise on site and within surrounding communities. However, the noise will be of a short term, temporary, localised nature and will last only during the construction activities/phase of the project. The noise level is anticipated to be less than 50dBA to the nearest sensitive receivers as required by SANS 10103 and thus authorisation will not be required for the noise. Occupational health and safety standards will apply.

## 13. WATER USE

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

<input checked="" type="checkbox"/> Municipal	<input type="checkbox"/> Water board	<input type="checkbox"/> Groundwater	<input type="checkbox"/> River, stream, dam or lake	<input type="checkbox"/> Other	<input type="checkbox"/> The activity will not use water
---	--------------------------------------	--------------------------------------	---	--------------------------------	--

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month:

litres

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES

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

The Water Use Licence Application process is being undertaken separately by the Client and does not form part of this process.

## 14. ENERGY EFFICIENCY

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

The appointed Contractor will be advised to transport all construction materials on site at the same time where possible and the collection of waste materials will be conducted simultaneously with other activities to reduce the amount of fuel usage for such transportation.

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

Diesel fuel will be used on site instead of electricity.

## SECTION B: SITE/AREA/PROPERTY DESCRIPTION

### Important notes:

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

Section B Copy No. (e.g. A): 0

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

This section has not been duplicated due to the similar environment for both alternatives.

- Has a specialist been consulted to assist with the completion of this section? NO  
 If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

**Property description/physical address:**

<b>Province</b>	Mpumalanga Province
<b>District Municipality</b>	Gert Sibande District Municipality
<b>Local Municipality</b>	Chief Albert Luthuli Local Municipality
<b>Ward Number(s)</b>	
<b>Farm name and number</b>	Mayflower 218 IT
<b>Portion number</b>	0
<b>SG Code</b>	See below

T 0 1 T 0 0 0 0 0 0 0 0 0 2 1 8 0 0 0 0 0 0

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

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

Residential Area.

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

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



**1. GRADIENT OF THE SITE**

Indicate the general gradient of the site.

**Alternative A1**



**Alternative A2**



**2. LOCATION IN LANDSCAPE**

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

**Alternative A1**

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

**Alternative A2**

2.1 Ridgeline	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input checked="" type="checkbox"/>
2.2 Plateau	<input type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

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

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

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

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the

## BASIC ASSESSMENT REPORT

project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

### 4. GROUNDCOVER

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

#### Alternative 1

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

#### Alternative 2

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

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

### 5. SURFACE WATER

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

#### Alternative 1

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

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

There are six (6) water features crossed by alternative 1 and these include the Empuluzi River.

## BASIC ASSESSMENT REPORT

### Alternative 2

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

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

There are eleven (11) water features crossed by alternative 2 and these include the Empuluzi River.

### 6. LAND USE CHARACTER OF SURROUNDING AREA

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

#### Alternative 1

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

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

N/A

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

N/A

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)	YES	
The Empuluzi River that flows south-eastwards (just to the east of the proposed sewer alignment) has been designated as a CBA River.		
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

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

### Alternative 2

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station <sup>H</sup>
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential <sup>A</sup>	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant <sup>A</sup>	Nature conservation area
Medium industrial <sup>AN</sup>	Train station or shunting yard <sup>N</sup>	Mountain, koppie or ridge
Heavy industrial <sup>AN</sup>	Railway line <sup>N</sup>	Museum
Power station	Major road (4 lanes or more) <sup>N</sup>	Historical building
Office/consulting room	Airport <sup>N</sup>	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam <sup>A</sup>	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

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

N/A

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

N/A



## BASIC ASSESSMENT REPORT

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)	YES	
The Empuluzi River that flows south-eastwards (just to the east of the proposed sewer alignment) has been designated as a CBA River.		
Core area of a protected area?		NO
Buffer area of a protected area?		NO
Planned expansion area of an existing protected area?		NO
Existing offset area associated with a previous Environmental Authorisation?		NO
Buffer area of the SKA?		NO

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

### 7. CULTURAL/HISTORICAL FEATURES

#### Alternative 1

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

NO
Uncertain

According to the Heritage Report compiled by Dr Johnny van Schalkwyk, there are no heritage features, objects and sites found in the immediate study area.

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

N/A

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

YES	NO
YES	NO

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

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

#### Alternative 2

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:

NO
Uncertain

According to the Heritage Report compiled by Dr Johnny van Schalkwyk, there are no heritage features, objects and sites found in the immediate study area.

## BASIC ASSESSMENT REPORT

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

N/A.

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

YES	NO
-----	----

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

YES	NO
-----	----

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

### 8. SOCIO-ECONOMIC CHARACTER

#### a) Local Municipality

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

Level of unemployment:

According to the Chief Albert Luthuli Local Municipality draft Integrated Development Plan, 2014-2015, approximately 35.4% of the population within the municipality is unemployed. This percentage of unemployment is higher than the average rate of Gert Sibande District Municipality (29.7%) , implying that there is a high dependency rate.

Economic profile of local municipality:

Approximately 11.2% of the Chief Albert Luthuli Municipality population is economically active and having employment. About 35.4% of the population is unemployed, indicating that the dependency and unemployment rates are very high. About 65.6% of the population that is employed is in the formal sector whilst 21.9% is employed by the informal sector. The annual household income is R 48 790 which translates to R 4065 per month, which is the lowest income bracket when compared with other municipalities in the Mpumalanga Province (draft Chief Albert Luthuli Integrated Development Plan, 2014-2015).

Level of education:

According to the Chief Albert Luthuli Local Municipality draft Integrated Development Plan, 2014-2015, the illiteracy rate within the municipality is significantly high. Nineteen percent (19%) of the people older than 20 years are uneducated when compared to the Mpumalanga Province as a whole which has an average of 14%. The population which has completed matric and tertiary education is only 33.2%.

#### b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

R
---

What is the expected yearly income that will be generated by or as a result of the activity?

R
---

Will the activity contribute to service infrastructure?

YES	NO
-----	----

Is the activity a public amenity?

YES	NO
-----	----

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

--

What is the expected value of the employment opportunities during the development and construction phase?

--

What percentage of this will accrue to previously disadvantaged individuals?

--

## BASIC ASSESSMENT REPORT

How many permanent new employment opportunities will be created during the operational phase of the activity?

What is the expected current value of the employment opportunities during the first 10 years?

What percentage of this will accrue to previously disadvantaged individuals?


### 9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or [BGIShelp@sanbi.org](mailto:BGIShelp@sanbi.org). Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	According to the Mpumalanga Conservation Plan (2014), the proposed project is located in an area with limited to no natural habitat remaining.
				According to the surface water specialist study, the Empuluzi River that flows south-eastwards (just to the east of the proposed sewer alignment) has been designated as a CBA River.

- b) **Indicate and describe the habitat condition on site**

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	10%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	30%	
Degraded (includes areas heavily invaded by alien plants)	30%	
Transformed	30%	

## BASIC ASSESSMENT REPORT

(includes cultivation, dams, urban, plantation, roads, etc)		
The greatest portion of the grasslands of the study area are transformed and degraded and comprise of the largest component of the vegetation within the Mayflower bulk sewerage project development area. The study area is mainly dominated by residential houses, informal shacks and small-scale agricultural fields (old and current) that are mostly located on the mid-slopes as well as grassland plains. As a result, the natural vegetation has become degraded and is mostly transformed. The grassland areas are currently used for grazing purposes.		

**c) Complete the table to indicate:**

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
<b>Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)</b>	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened							
		YES	NO	UNSURE	YES	NO	YES	NO

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

The study area falls within the KaNgwane Montane Grassland (Gm 16) vegetation unit (Mucina & Rutherford 2006). The KaNgwane Montane Grassland (Gm 16) vegetation unit is distributed in Mpumalanga and Swaziland, and marginally into northern Kwazulu-Natal. KaNgwane Montane Grassland (Gm 16) occurs along the gentle slopes of the Escarpment, from the Phongolo Valley in the south, northwards to the Usutu Valley and to the uppermost Lomati Valley near Carolina, including the western grassland areas of Swaziland (refer to Figure 8). Altitude varies between 880- 1 740 m with the altitude of the site being 1 338 – 1421 m. The vegetation structure is comprised of a short closed grass layer with many forbs, and a few scattered shrubs on the rocky outcrops. (Mucina et al. 2006). The major land-use surrounding the site is residential and commercial with small-scale vegetable crop farming as well as livestock grazing (cattle and goats) within the secondary succession grasslands (old lands).

KaNgwane Montane Grassland (GM 16) is classified as a Vulnerable vegetation unit with only 0.4 % protected within any formally proclaimed nature reserves (Malalotja, Nooitgedacht Dam and Songimvelo). A number of private conservation areas protect small patches of this unit. It is well suited for afforestation and 30% has already been converted to plantations of alien trees. A further 6% is under cultivation. Erosion potential is low except along the channeled valley bottom wetlands. The embankments are heavily eroded by uncontrolled livestock drinking and grazing activities as well as informal sand mining activities. Conservation target is 27% conserved (Mucina & Rutherford 2006).

The transformed and degraded secondary succession grasslands comprise the largest component of the vegetation within the Mayflower bulk sewerage project development area. The area consists of existing (Mayflower) residential houses, informal shacks and small-scale agricultural fields (old and current) that are mostly located on the mid-slopes as well as grassland plains. As a result, the natural vegetation has become degraded and is mostly transformed. The grassland areas are currently used for grazing purposes.

The vegetation within the channeled valley bottom has been historically transformed and degraded due to surrounding anthropogenic activities including increased siltation and sedimentation due to poor soil conservation on the adjacent hill-slopes as well as nutrient enrichment (eutrophication) and the removal of vegetation during ploughing of lands within the seasonal and temporary wet zones. The site has been historically annually ploughed and old fallow lands are dominated by secondary succession grasses.

The study area is located near the aquatic habitats which are the Empuluzi River and Paulstrine wetlands. These aquatic habitats are considered to be of conservation importance due to the numerous roles to which they contribute in the survival of fauna and flora species.



## SECTION C: PUBLIC PARTICIPATION

### 1. ADVERTISEMENT AND NOTICE

<b>Publication name</b>	The information will be provided in the final report.	
<b>Date published</b>	The information will be provided in the final report.	
<b>Site notice position</b>	<b>Latitude</b>	<b>Longitude</b>
	The information will be provided in the final report.	The information will be provided in the final report.
<b>Date placed</b>	The information will be provided in the final report.	

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

### 2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 54(2)(e) and 54(7) of GN R.543.

Key stakeholders (other than organs of state) identified in terms of Regulation 54(2) (b) of GN R.543:

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Mr. VN Mpila	Chief Albert Luthuli Local Municipality	mpilavn@albertluthuli.gov.za
Mr Luck Nkosi	Chief Albert Luthuli Local Municipality	nkosilv@albertluthuli.gov.za
Mr. J Eksteen	Mpumalanga Tourism & Parks Agency	johan@mtpa.co.za
Ms Robyn Luyt,	Mpumalanga Department of Economic Development, Environment and Tourism	rluyt@mpg.gov.za
Mr. Moduka, Benjamin	Department of Culture, Sports, Recreation and Provincial Heritage	bmoduka@mtg.gov.za
Mr S. Shabangu,	Department of Water and Sanitation	ShabanguS2@dwa.gov.za
Mr. Stephan Pienaar	Department of Public Works, Roads & Transport	spienaar@mpg.gov.za

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

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

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

<b>Summary of main issues raised by I&amp;APs</b>	<b>Summary of response from EAP</b>
This information will be provided in the final report.	This information will be provided in the final report.

#### 4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

#### 5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Mpumalanga Tourism & Parks Agency	Mr. J Eksteen	013 759 5300		johan@mtpa.co.za	
Mpumalanga Department of Economic Development, Environment and Tourism	Ms Robyn Luyt,	013 759 4067		rluyt@mpg.gov.za	
Department of Culture Sports Recreation Provincial Heritage	Mr. Moduka, Benjamin	013 766 5196		bmoduka@mtg.gov.za	
Department of Water and Sanitation	Mr S. Shabangu,	013 759 7300		ShabanguS2@dwa.gov.za	
Department of Public Works, Roads & Transport	Mr. Stephan Pienaar	013 766 8522		spienaar@mpg.gov.za	

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

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

#### 6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

## SECTION D: IMPACT ASSESSMENT

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

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

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

IMPACT ASSESSMENT DESCRIPTIVE CRITERIA	
Nature	Include a descriptive sentence
Probability	Categories 1 – 5
	1 Improbable (less than 24% chance of occurring)
	2 Probable (25 – 49%)
	3 Likely (50 – 69%)
	4 Very likely (70 – 89%)
	5 Definite (90 – 100%)
Frequency	Categories 1 – 5
	1 Very rare to remote (once or twice a decade)
	2 Unusual to occasional (once or twice every 5 years)
	3 Frequent (a few times a month)
	4 Very frequent (a few times a week, to daily)
	5 Continuous (daily to a significant percentage of every day)
Extent	Categories 1 – 5
	1 Footprint / site
	2 Local
	3 Regional
	4 National
	5 International (trans-boundary)
Duration	Categories 1 – 5
	1 Short (few days to a few months, less than a phase)
	2 Short (few months, or less than a phase in total)
	3 Medium (a few years, significant part of a phase)
	4 Long (lifespan of development (i.e. all of operation))
	5 Permanent
Intensity	Categories 1 – 5
	1 Very low – natural processes not affected
	2 Low – natural processes slightly affected
	3 Medium – natural processes continue but in a modified manner
	4 Medium-high – natural processes are modified significantly
	5 High – natural processes disturbed significantly so that they cease to occur (temporarily / permanently)
Significance	<b>Significance = P + F + E + D + I</b> Minimum value of 5, maximum of 25 Status determines if positive / negative

## BASIC ASSESSMENT REPORT

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	<b>Any positive value</b>	<b>No impact</b> 1. High to low consequence, probability not an issue as positive, <b>no mitigation required</b>
	1– 5	<b>Low</b> 2. Low consequence, probably, <b>minimal mitigation may be required</b>
	6 to 10	<b>Medium</b> 3. Medium consequence, probably, <b>mitigation is advised / preferred</b>
	11 to 15	<b>Medium–high</b> 4. Medium to high consequence, probably to very probable, <b>mitigation is necessary</b>
	16 to 20	<b>High</b> 5. High consequence, probably / definite, <b>mitigation is essential</b>
	21 to 25	<b>Extreme</b> 6. Very high consequence, definite, <b>fatal flaw!</b>

## BASIC ASSESSMENT REPORT

### 1(a). IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN

#### SEWER PIPELINE ALTERNATIVES

Alternative 1 (Preferred)			
DIRECT IMPACTS			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>1. Ecology</b>  There will be no impacts that will result on ecological features during the planning phase.	N/A	N/A	N/A
<b>2. Heritage</b>  There will be no impacts that will result on heritage features, objects and sites during the planning phase.	N/A	N/A	N/A
<b>3. Surface water and wetlands</b>  There will be no impacts that will result on surface water features during the planning phase.	N/A	N/A	N/A
INDIRECT IMPACTS			
None			
CUMULATIVE IMPACTS			
None			



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<b>Alternative 2</b>			
<b>DIRECT IMPACTS</b>			
<b>Potential Impacts</b>	<b>Significance Rating</b>	<b>Mitigation Measure (Also Refer to EMPr)</b>	<b>Significant of Impact After Mitigation</b>
<b>1. Ecology</b> There will be no impacts that will result on ecological features during the planning phase.	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>2. Heritage</b> There will be no impacts that will result on heritage features, objects and sites during the planning phase.	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>
<b>3. Surface water and wetlands</b>  There will be no impacts that will result on surface water features during the planning phase.			
<b>INDIRECT IMPACTS</b>			
<b>None</b>			
<b>CUMULATIVE IMPACTS</b>			
<b>None</b>			

**SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED DURING THE PLANNING AND DESIGN PHASE**

<b>IMPACTS</b>	<b>Alternative 1 (Preferred): Without Mitigation</b>	<b>Alternative 1 (Preferred): With Mitigation</b>	<b>Alternative 2: Without Mitigation</b>	<b>Alternative 2: With Mitigation</b>
<b>DIRECT IMPACTS</b>				
<b>None</b>				
<b>INDIRECT IMPACTS</b>				
<b>None</b>				
<b>CUMULATIVE IMPACTS</b>				
<b>None</b>				

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### 1(b) IMPACTS THAT MAY RESULT FROM CONSTRUCTION

Alternative 1 (Preferred)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMP)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<p><b>1. Construction Related Impacts</b></p> <p>Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts during construction.</p>	<p><b>Duration:</b> Medium Term (3)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (14)</b>  <b>Medium–High</b></p>	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> <li>Dust suppression measures must be implemented by the appointed Contract to minimise dust nuisance in the surrounding communities.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Unusual (2)  <b>Probability:</b> Improbable (1)  <b>Intensity:</b> Low (1)</p> <p style="background-color: #92d050;"><b>Significance Rating: (7)</b>  <b>Medium</b></p>
<p><b>2. Ecology</b></p> <p>Habitat destruction and associated disturbances to remaining faunal species. The clearing of vegetation for construction purposes will expose the soil and may result in soil erosion.</p>	<p><b>Duration:</b> Long Term (4)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Definite (5)  <b>Intensity:</b> Low (2)</p> <p style="background-color: orange;"><b>Significance Rating: (17)</b>  <b>High</b></p>	<ul style="list-style-type: none"> <li>The Contractor needs to maintain close site supervision. The construction workers must be limited to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> <li>Any erosion channels developed during the construction period should be backfilled and compacted, and the areas restored to a proper condition. The Contractor should ensure that cleared areas are effectively stabilised to prevent and control erosion.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Frequent (3)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significant Rating (11)</b>  <b>Medium High</b></p>
<p><b>3. Heritage :</b></p> <p>There were no heritage features, objects and sites found in the study area during the field assessment. However, during the construction phase, there might be disturbance to or uncovering of buried heritage features.</p>	<p><b>Duration:</b> Medium Term (3)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)</p> <p style="background-color: yellow;"><b>Significance Rating: (14)</b>  <b>Medium–High</b></p>	<ul style="list-style-type: none"> <li>Should heritage objects and artefacts be uncovered during the construction process, construction work will need to stop immediately and the uncovered objects will be reported to the nearest museum.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Rare (1)  <b>Probability:</b> Probably (2)  <b>Intensity:</b> Low (1)</p> <p style="background-color: #92d050;"><b>Significance Rating: (7 )</b>  <b>Medium</b></p>

## BASIC ASSESSMENT REPORT

Alternative 1 (Preferred)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>4. Surface water and wetlands:</b> <ul style="list-style-type: none"> <li>Impacts on surface water features associated with laying of buried pipelines.</li> <li>Erosion of wetland soils, impact on water quality and river bed as well as habitat disturbance.</li> <li>The risk of siltation, sediments and bank collapse during construction.</li> <li>The abstraction of large volumes of water for construction purposes from a riverine system would lead to localised and possible downstream (reduced input to streams and rivers) implications).</li> </ul>	<b>Duration: Medium Term (3)</b> <b>Extent: Localised (2)</b> <b>Frequency: Very Frequent (4)</b> <b>Probability: Very Likely (4)</b> <b>Intensity: Medium (3)</b> <b>Significance Rating: (16)</b> <b>High</b>	<ul style="list-style-type: none"> <li>The re-instatement of vegetation within the wetland and within riparian zones of channels after pipeline construction is a critical factor in the prevention of impacts on both wetlands and rivers.</li> <li>A Water Use Licence will need to be sort from the Department of Water and Sanitation for the abstraction of water.</li> <li>It is strongly recommended that works take place in winter (the dry season) when flow velocities will be at their lowest, and thus more easily manageable.</li> <li>Spill prevention measures must be put in place both up and down stream of the area where works are to be installed prior to any activities taking place. Other spill response equipment must also be onsite during activities.</li> <li>It is recommended that river flow be allowed to bypass the works on one side of the channel with temporary structures placed (e.g. sand bags etc.) to keep the works dry. Once work is completed on the one side, the river flow should be diverted through the newly constructed pipe section and restored substrate and work can be completed on the opposite side.</li> </ul>	<b>Duration: Short Term (2)</b> <b>Extent: Localised (2)</b> <b>Frequency: Frequent (3)</b> <b>Probability: Probably (2)</b> <b>Intensity: Medium (3)</b> <b>Significance Rating: (12)</b> <b>Medium-High</b>
<b>INDIRECT IMPACTS</b>			
<b>1. Surface water and wetlands</b>  A number of activities, especially those relating to the access of construction vehicles and machinery along, and in the vicinity of the alignment can result in damage to and impacts on surface water resources.	<b>Duration: Medium Term (3)</b> <b>Extent: Localised (2)</b> <b>Frequency: Very Frequent (4)</b> <b>Probability: Very Likely (4)</b> <b>Intensity: Medium (3)</b> <b>Significance Rating: (16)</b> <b>High</b>	It is recommended that the appointed Contractor implement the mitigation measures provided in this report and EMPr in order to minimise the impacts.	<b>Duration: Short Term (2)</b> <b>Extent: Localised (2)</b> <b>Frequency: Frequent (3)</b> <b>Probability: Probably (2)</b> <b>Intensity: Medium (3)</b> <b>Significance Rating: (12)</b> <b>Medium-High</b>
<b>CUMULATIVE IMPACTS</b>			
<b>2. Ecology</b>	<b>Duration: Medium Term (3)</b> <b>Extent: Localised (2)</b>	<ul style="list-style-type: none"> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the</li> </ul>	<b>Duration: Short Term (1)</b> <b>Extent: Localised (2)</b>

## BASIC ASSESSMENT REPORT

Alternative 1 (Preferred)			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<p>The increased human density, heavy construction machinery and vehicles will indirectly result in the short-long term alteration of the faunal composition on the site and surrounding area.</p> <p>Loss of habitat for foraging, reproduction and shelter will most severely impact on the smaller sedentary species (insects, arachnids, reptiles, amphibians and mammals).</p>	<p><b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Likely (3)  <b>Intensity:</b> Low (2)  <b>Significance Rating: (14)</b>  <b>Medium-High</b></p>	<p>construction activities must not be disturbed.</p>	<p><b>Frequency:</b> Very Rare (1)  <b>Probability:</b> Probably (2)  <b>Intensity:</b> Low (1)  <b>Significance Rating: (7)</b>  <b>Medium</b></p>

Alternative 2			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
<p><b>1. Construction Related Impacts</b></p> <p>Movements of trucks, delivery of construction material, oil leakages from machinery and vehicles, disposal of construction waste etc. will constitute the main impacts during construction.</p>	<p><b>Duration:</b> Medium Term (-3)  <b>Extent:</b> Localised (-2)  <b>Frequency:</b> Very Frequent (-4)  <b>Probability:</b> Likely (-3)  <b>Intensity:</b> Low (-2)  <b>Significance Rating: (14)</b>  <b>Medium- High</b></p>	<ul style="list-style-type: none"> <li>Construction related (solid &amp; hazardous) and general waste must be collected regularly from the site and disposed of at an appropriate registered landfill site.</li> <li>Management of oil and other spillages and leakages must be minimized.</li> <li>Construction waste must not be stored more than 30 days on site.</li> <li>Dust suppression measures must be implemented by the appointed Contractor to minimise dust nuisance in the surrounding communities.</li> </ul>	<p><b>Duration:</b> Short Term (-1)  <b>Extent:</b> Localised (-2)  <b>Frequency:</b> Un-usual (-2)  <b>Probability:</b> Improbable (-1)  <b>Intensity:</b> Low (-1)  <b>Significance Rating: (7)</b>  <b>Medium</b></p>
<p><b>2. Ecology</b></p> <p>Habitat destruction and associated disturbances to remaining faunal species. The clearing of vegetation for construction purposes will expose the soil and may result in soil erosion.</p>	<p><b>Duration:</b> Long Term (4)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Very Frequent (4)  <b>Probability:</b> Definite (5)  <b>Intensity:</b> Medium (3)  <b>Significance Rating: (18)</b></p>	<ul style="list-style-type: none"> <li>The Contractor need to maintain close site supervision. The construction workers must be limited to the construction site in order to avoid destruction and disturbance of vegetation that is not affected by construction activities.</li> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<p><b>Duration:</b> Short Term (1)  <b>Extent:</b> Localised (2)  <b>Frequency:</b> Frequent (3)  <b>Probability:</b> Very Likely (4)  <b>Intensity:</b> Low (2)  <b>Significant Rating (12)</b></p>

## BASIC ASSESSMENT REPORT

Alternative 2			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
	<b>High</b>	<ul style="list-style-type: none"> <li>Any erosion channels developed during the construction period should be backfilled and compacted, and the areas restored to a proper condition. The Contractor should ensure that cleared areas are effectively stabilised to prevent and control erosion.</li> </ul>	<b>Medium High</b>
<p><b>3. Heritage</b> There were no heritage features, objects and sites found in the study area during the field assessment. However, during the construction phase there might be disturbance to or uncovering of buried heritage features.</p>	<p><b>Duration:</b> Medium Term (3) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Likely (3) <b>Intensity:</b> Low (2) <b>Significance Rating: (14)</b> <b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>Should heritage objects and artefacts be uncovered during the construction process, construction work will need to stop immediately and the uncovered objects be reported to the nearest museum.</li> </ul>	<p><b>Duration:</b> Short Term (1) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Rare (1) <b>Probability:</b> Probably (2) <b>Intensity:</b> Low (1) <b>Significance Rating: (7)</b> <b>Medium</b></p>
<p><b>4. Surface water and wetlands</b></p> <ul style="list-style-type: none"> <li>Impacts on surface water features associated with laying of buried pipelines.</li> <li>Erosion of wetland soils, impact on water quality and river bed as well as habitat disturbance.</li> <li>The risk of siltation, sediments and bank collapse during construction.</li> <li>The abstraction of large volumes of water for construction purposes from a riverine system would lead to localised and possible downstream (reduced input to streams and rivers) implications).</li> </ul>	<p><b>Duration:</b> Long Term (4) <b>Extent:</b> Localised (2) <b>Frequency:</b> Very Frequent (4) <b>Probability:</b> Definite (5) <b>Intensity:</b> Medium High (4) <b>Significance Rating: (19)</b> <b>High</b></p>	<ul style="list-style-type: none"> <li>The re-instatement of vegetation within the wetland and within riparian zones of channels after pipeline construction is a critical factor in the prevention of impacts on both wetlands and rivers.</li> <li>A Water Use Licence will need to be sort from the Department of Water and Sanitation for the abstraction of water.</li> <li>It is strongly recommended that works take place in winter (the dry season) when flow velocities will be at their lowest, and thus more easily manageable.</li> <li>Spill prevention measures must be put in place both up and down stream of the area where works are to be installed prior to any activities taking place. Other spill response equipment must also be onsite during activities.</li> <li>It is recommended that river flow be allowed to bypass the works on one side of the channel with temporary structures placed (e.g. sand bags etc.) to keep the works dry. Once work is completed on the one side, the river flow should be diverted through the newly constructed pipe section and restored substrate and</li> </ul>	<p><b>Duration:</b> Medium Term (3) <b>Extent:</b> Localised (2) <b>Frequency:</b> Frequent (3) <b>Probability:</b> Likely (3) <b>Intensity:</b> Medium (3) <b>Significance Rating: (14)</b> <b>Medium High</b></p>



## BASIC ASSESSMENT REPORT

Alternative 2			
Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
		work can be completed on the opposite side.	
INDIRECT IMPACTS			
<p><b>3. Surface water and wetlands</b></p> <p>A number of activities, especially those relating to the access of construction vehicles and machinery along, and in the vicinity of the alignment can result in damage to and impacts on surface water resources.</p>	<p><b>Duration: Long Term (4)</b>  <b>Extent: Localised (2)</b>  <b>Frequency: Very Frequent (4)</b>  <b>Probability: Definite (5)</b>  <b>Intensity: Medium High (4)</b>  <b>Significance Rating: (19)</b>  <b>High</b></p>	<p>It is recommended that the appointed Contractor implement the mitigation measures provided in this report and EMPr in order to minimise the impacts.</p>	<p><b>Duration: Medium Term (3)</b>  <b>Extent: Localised (2)</b>  <b>Frequency: Frequent (3)</b>  <b>Probability: Likely (3)</b>  <b>Intensity: Medium (3)</b>  <b>Significance Rating: (14)</b>  <b>Medium High</b></p>
CUMULATIVE IMPACTS			
<p><b>4. Ecology</b></p> <p>The increased human density, heavy construction machinery and vehicles will indirectly result in the short-long term alteration of the faunal composition on the site and surrounding area.</p> <p>Loss of habitat for foraging, reproduction and shelter will most severely impact on the smaller sedentary species (insects, arachnids, reptiles, amphibians and mammals).</p>	<p><b>Duration: Medium Term (3)</b>  <b>Extent: Localised (2)</b>  <b>Frequency: Very Frequent (4)</b>  <b>Probability: Likely (3)</b>  <b>Intensity: Low (2)</b>  <b>Significance Rating: (14)</b>  <b>Medium-High</b></p>	<ul style="list-style-type: none"> <li>The clearance of vegetation must be conducted in a phased manner and vegetation not interfering with the construction activities must not be disturbed.</li> </ul>	<p><b>Duration: Short Term (1)</b>  <b>Extent: Localised (2)</b>  <b>Frequency: Very Rare (1)</b>  <b>Probability: Probably (2)</b>  <b>Intensity: Low (1)</b>  <b>Significance Rating: (7)</b>  <b>Medium</b></p>

## BASIC ASSESSMENT REPORT

### SUMMARY OF IMPACTS AND AVERAGE POINTS ALLOCATED TO ALTERNATIVES DURING THE CONSTRUCTION PHASE

IMPACTS	Alternative 1 (Preferred): Without Mitigation	Alternative 1 (Preferred): With Mitigation	Alternative 2: Without Mitigation	Alternative 2: With Mitigation
<b>DIRECT IMPACTS</b>				
Construction Related Impacts	14	7	14	7
Ecology	17	11	18	12
Heritage	14	7	14	7
Surface water and wetlands	16	12	19	14
<b>Total</b>	<b>61</b>	<b>37</b>	<b>65</b>	<b>40</b>
<b>INDIRECT IMPACTS</b>				
Surface water and wetlands	16	12	19	14
<b>CUMULATIVE IMPACTS</b>				
Ecology	14	7	14	7

### 1 (c) IMPACT THAT MAY RESULT FROM OPERATION

Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
a) After the completion of the pipeline excavations, the newly excavated softer soils could potentially offer favourable habitat for certain burrowing animal species. b) Residual impacts that arose during the construction phase and incorrect rehabilitation of construction-related access. c) Clearing of the servitude through the use of herbicides may also pollute nearby watercourses if not properly undertaken. d) During the inspections of the	<b>Duration:</b> Long Term (-4) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Very Frequent (-4) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Low (-2) <b>Significance Rating: (15)</b> <b>Medium-High</b>	<ul style="list-style-type: none"> <li>Care should be taken at all times to prevent any potential impacts that might result from operational activities. DRDLA must monitor the rehabilitation activities to prevent residual impacts.</li> <li>The sewer pipeline should be monitored at least twice a year for its operating condition together with the associated infrastructure.</li> <li>Should there be any leakages, they should be fixed immediately. The surrounding communities should be encouraged to report any incidence that occurs by using the emergency number provided and/or by reporting to the municipality.</li> <li>Vegetation that is not interfering with the operation of the sewer pipeline and associated infrastructure must not be disturbed during the maintenance process.</li> </ul>	<b>Duration:</b> Short Term (-1) <b>Extent:</b> Localised (-2) <b>Frequency:</b> Unusual (-2) <b>Probability:</b> Likely (-3) <b>Intensity:</b> Very Low (-1) <b>Significance Rating: (-9)</b> <b>Medium</b>

## BASIC ASSESSMENT REPORT

Potential Impacts	Significance Rating	Mitigation Measure (Also Refer to EMPr)	Significant of Impact After Mitigation
<b>DIRECT IMPACTS</b>			
e) servitude, impacts may occur on the watercourses and wetlands. There are no significant impacts anticipated during the operational phase of the project.			
<b>INDIRECT IMPACTS</b>			
<b>None</b>			
<b>CUMULATIVE IMPACTS</b>			
<b>None</b>			

### 1(d) IMPACTS THAT MAY RESULT FROM DECOMMISSIONING

Potential Impacts
The closure and decommissioning of the sewer pipeline is unknown at this stage. However, when closure and decommissioning does take place a separate EIA process will have to be conducted to address impacts that arise as a result of closure.

No Go Option
Should the status quo prevail, Chief Albert Luthuli Local Municipality will not meet the current backblock of sanitation services in areas under its jurisdiction, as well as possible future demands. Furthermore, the local communities will be infringed of their rights to basic amenities and turn to service delivery protests; therefore this option is not favoured.

A complete impact assessment in terms of Regulation 22(2)(i) of GN R.543 must be included as Appendix F.

## 1. ENVIRONMENTAL IMPACT STATEMENT

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

### Alternative 1 (preferred alternative)

This alternative is preferred from an environmental perspective as the majority of the alignment occurs within transformed and degraded vegetation and will result in insignificant environmental impacts.

**Technical assessment finding:**

This option is the most viable as it is the shortest route and the most economical as the pipeline will be encased.

**Ecological assessment finding:**

This option is located within an already degraded and transformed area in terms of vegetation thus will result in insignificant impacts.

**Surface water and wetland assessment finding:**

There are six (6) surface water features that will be crossed by Alternative 1 as compared to alternative 2, thus alternative 1 is preferred from a surface water perspective as it will result in less disturbance of the water features.

**Heritage assessment finding:**

There was no preference of the alternatives from the heritage study.

### Alternative 2

This option is least preferred for the following reasons:

**Technical assessment findings:**

It will include 300 additional households from an existing sewer pipeline which does not adequately cater for additional flows and has a smaller pipe size and capacity. It is also expensive from an engineering and technical perspective due to the construction of the new sump, 2km of additional new pipeline and the need to possibly upgrade the existing or extending a parallel pipeline until such time as it can be connected into the existing system based on the capacity of the pipeline.

**Ecological assessment findings:**

This alternative runs parallel to the valley bottom which increases the potential for further siltation and sedimentation as well as a potential pit-fall trap for remaining faunal species migrating towards the valley bottom wetland. The proposed alignment also bisects granite rocky outcrops and will result in additional blasting activities and potential disturbances to remaining faunal species (rupicolous species).

**Surface water and wetland assessment findings:**

There are eleven (11) surface water features which will be crossed by Alternative 2 therefore, resulting in significant impacts on water features.

**Heritage assessment findings:**

There was no preference of the alternatives from the heritage study.

### **No go Option**

Should the status quo prevail, Chief Albert Luthuli Local Municipality will not meet the current backblock of sanitation services in areas under its jurisdiction, as well as possible future demands. Furthermore, the local communities will be infringed of their rights to basic amenities and turn to service delivery protests; therefore this option is not favoured.



**SECTION E. RECOMMENDATION OF PRACTITIONER**

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?

YES	NO
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process before a decision can be made (list the aspects that require further assessment).

N/A

If "YES", please list any recommended conditions, including mitigation measures that should be considered for inclusion in any authorisation that may be granted by the competent authority in respect of the application.

The findings of the specialist studies undertaken as part of the Basic Assessment provided an assessment of both the existing conditions and potential negative impacts anticipated as a result of the proposed project. The findings conclude that there are no environmental fatal flaws that should prevent the proposed project from proceeding, provided that the recommended mitigation and management measures are implemented throughout the project's life cycle.

Accordingly, **Alternative 1** has emerged as the preferred option from an environmental perspective and it is recommended that this alternative be authorized. Royal HaskoningDHV and the specialist sub-consultants are of the opinion that the impacts identified for the project can be successfully mitigated. It is recommended that the Basic Assessment Report and the Environmental Management Programme must be provided to guide the Contractor and the rest of the project team in ensuring that there is no further significant damage or harm to the environment.

Is an EMPr attached?

YES	NO
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The EMPr must be attached as Appendix G.

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

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

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

**Sibongile Gumbi**

NAME OF EAP

SIGNATURE OF EAP

DATE

**SECTION F: APPENDIXES**

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information