



**BASIC ASSESSMENT FOR THE PROPOSED MEYERSDAL
RESERVOIR OVERFLOW PIPELINE, EKURUHLINI
METROPOLITAN MUNICIPALITY, GAUTENG PROVINCE**

DRAFT BASIC ASSESSMENT REPORT

DECEMBER 2017

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BASIC ASSESSMENT REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

Basic assessment report in terms of the Environmental Impact Assessment Regulations, 2014, promulgated in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.

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, 2014 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 **08 December 2014**. 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
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.
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 in the electronic copy of the report submitted to the competent authority

PROJECT DETAILS

- Title** : Environmental Basic Assessment Process for
The Proposed Meyersdal Reservoir Overflow Pipeline,
Ekurhleni Metropolitan Municipality, Gauteng Province.
- Report compiled by** : Company Name: Envirolution Consulting
Contact person: Mr Dalian Govender
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- Sub-Consultants** : Lukas Niemand
J A Van Schalkwyk
- Client** : RAND WATER (RW)
- Report Status** : Draft Basic Assessment Report for Public Review
- Review Period** : **The 30-day period for review is from
8 December 2017 – 29 January 2018**

DETAILS OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

Environmental Assessment Practitioner (EAP):	Envirolution Consulting (Pty) Ltd		
Contact person:	Karthigesan Govender		
Postal address:	PO Box 1898, Sunninghill		
Postal code:	2157		
Telephone:	(0861) 444499	Cell:	(083) 419 8905
E-mail:	gesan@envirolution.co.za	Fax:	(086) 162 62 22
EAP Qualifications	BSc (Hons)		
EAP Registrations/Associations	Registered with the South African Council for Natural Scientific Professions (No: 400049/12)		

Details of the EAP's expertise to carry out Basic Assessment procedures

Envirolution Consulting Pty Ltd was contracted by Rand Water as the independent environmental consultant to undertake the Environmental Basic Assessment process for the proposed project. Envirolution Consulting Pty Ltd is not a subsidiary of or affiliated to Rand Water. Furthermore, Envirolution Consulting does not have any interests in secondary developments that may arise out of the authorisation of the proposed project.

The Envirolution Consulting team have considerable experience in environmental impact assessments and environmental management, and have been actively involved in undertaking environmental studies, for a wide variety of projects throughout South Africa, including those associated with linear developments.

The EAPs from Envirolution Consulting who are responsible for this project are (refer to **Appendix H** for CVs):

- Gesan Govender – The principle environmental assessment practitioner (EAP) for this project is a registered Professional Natural Scientist and holds an Honours Degree in Botany. He has over 15 years of experience within the field of environmental management. His key focus is on strategic environmental assessment and advice; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; compliance reporting; the identification of environmental management solutions and mitigation/risk minimising measures; and strategy and guideline development. He is currently responsible for the project management of EIAs for several diverse projects across the country.
- Dalian Govender - Mr. Dalian Govender holds a BSc. Environmental Science Honours degree from the University of Kwa-Zulu Natal. His expertise in the environmental field can be fundamentally attributed to the skills gained through research as well as a year of practical experience. His key focus remains on strategic environmental assessment; management and co-ordination of environmental projects, which includes integration of environmental studies and environmental processes into larger engineering-based projects and ensuring compliance to legislation and guidelines; environmental auditing and compliance reporting; the

identification of environmental management solution and mitigation/risk minimising measures; environmental auditing, monitoring and reporting compliance. Dalian is currently an Environmental Manager at Envirolution Consulting Pty Ltd.

In order to adequately identify and assess potential environmental impacts associated with the proposed project, Envirolution has appointed the following specialists to conduct specialist impact assessments:

- Ecology (Flora and Fauna) – Lukas Niemand (Pachnoda Consulting)
- Ecological Rehabilitation and Management Study – Lukas Niemand (Pachnoda Consulting)
- Heritage - J A Van Schalkwyk (National Cultural History Museum)

Details of Specialist Declaration of Interest included in **Appendix I**

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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

1.1 Background Information

Rand Water (hereafter referred to as "RW") is a South African water utility that supplies potable quality water to the Gauteng province and other areas of the country and is the largest water utility in Africa. Rand Water is proposing an overflow pipeline from the Ekurhuleni reservoir located on Portion 187 Meyersdal, the aforementioned area is approximately 61 000m² (6.1Ha). The reservoir overflow affects the remainder of Portion 241 on the South as well as Meyersdal Nature Estate Extension 6 (Portion 80). The reservoirs belong to Ekurhuleni Metropolitan Municipality and are supplied by Rand Water from Palmiet Pump Stations.

1.2 Project Description and Routes

The Ekurhuleni Metropolitan Municipality receives water at its Meyersdal water reservoirs from Rand Water through a pumping main from the Palmiet Pump Station. Meyersdal water reservoirs are approximately 2.6km from the Palmiet Pump Station with the 900mm Nominal Diameter (ND), 8mm thick steel pumping main being 2875.7m long. The maximum pumping rate is 100MLD (1.16 m³/s), feeding two (2) concrete reservoirs of approximately 80ML capacity. Palmiet pump station is located at 1580 amsl while the reservoirs are 1703.90 amsl (TWL).

The primary objective of the project is to mitigate the risk of flooding private properties downhill of the Meyersdal reservoirs due to oversupply of pumped water from Rand Water's Palmiet Pump Station to the Ekurhuleni District Municipality's Meyersdal Water Reservoirs in Alberton. As a result of mitigating the reservoir overflow, Rand Water will:

- Avoid the potential litigations emanating from property owners whose properties get damaged as a result of flooding.
- Diverting the overflow water away from the affected properties as well as safely discharging the water without causing erosion and damage to the environment.
- Realise an improvement on its brand name as well as improved relationship with their customers.

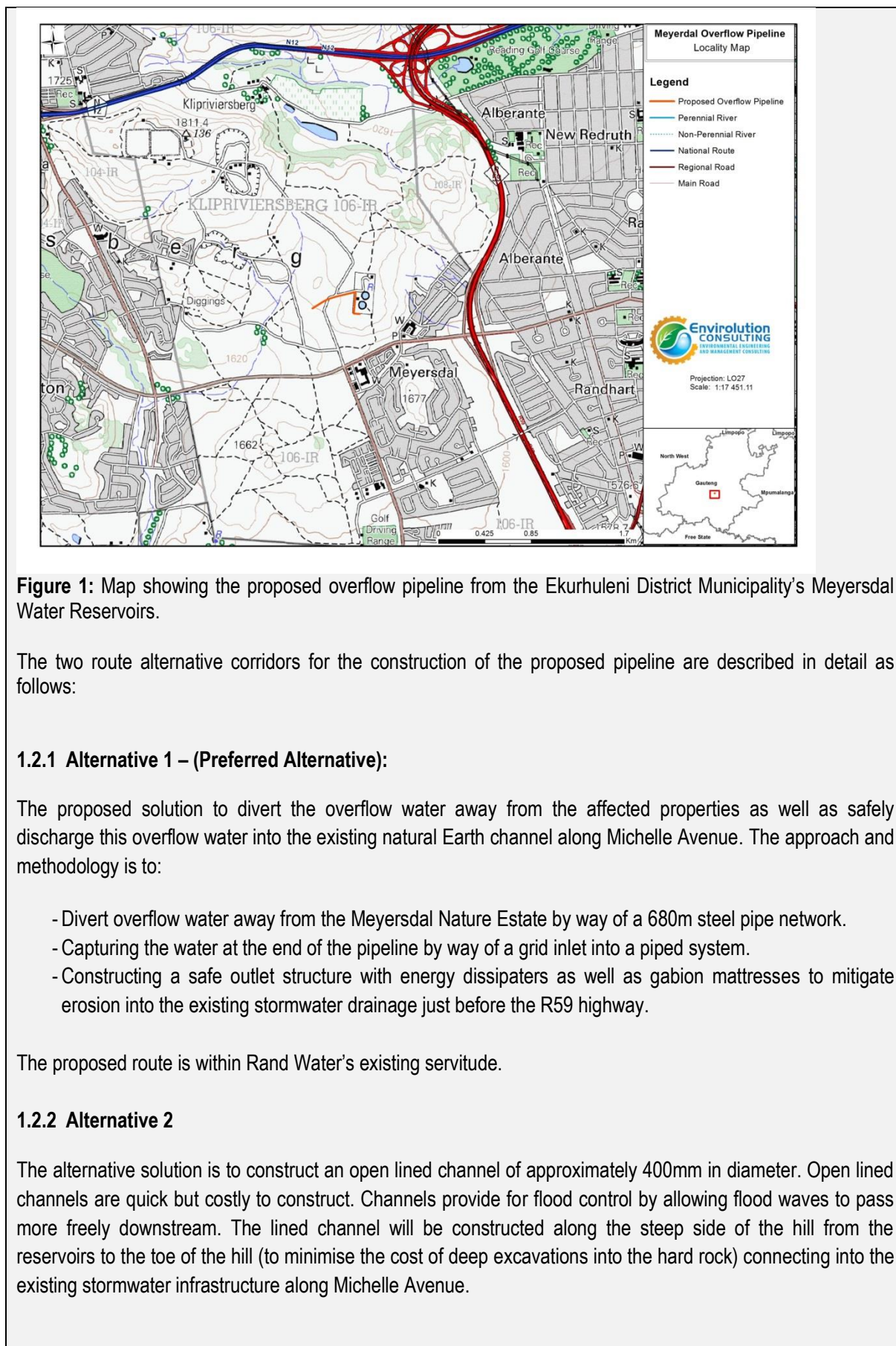


Figure 1: Map showing the proposed overflow pipeline from the Ekurhuleni District Municipality’s Meyersdal Water Reservoirs.

The two route alternative corridors for the construction of the proposed pipeline are described in detail as follows:

1.2.1 Alternative 1 – (Preferred Alternative):

The proposed solution to divert the overflow water away from the affected properties as well as safely discharge this overflow water into the existing natural Earth channel along Michelle Avenue. The approach and methodology is to:

- Divert overflow water away from the Meyersdal Nature Estate by way of a 680m steel pipe network.
- Capturing the water at the end of the pipeline by way of a grid inlet into a piped system.
- Constructing a safe outlet structure with energy dissipaters as well as gabion mattresses to mitigate erosion into the existing stormwater drainage just before the R59 highway.

The proposed route is within Rand Water’s existing servitude.

1.2.2 Alternative 2

The alternative solution is to construct an open lined channel of approximately 400mm in diameter. Open lined channels are quick but costly to construct. Channels provide for flood control by allowing flood waves to pass more freely downstream. The lined channel will be constructed along the steep side of the hill from the reservoirs to the toe of the hill (to minimise the cost of deep excavations into the hard rock) connecting into the existing stormwater infrastructure along Michelle Avenue.

1.3. Specialist studies

Several specialist studies have been undertaken to provide more detailed information on the environmental aspects that may be affected by the proposed project. Specialist Ecological (Flora and Fauna), Ridge and Rehabilitation and Heritage Assessments were undertaken during the Basic Assessment process and their reports are attached within Appendix D of this BAR.

1.4. Construction Process

The following activities will be undertaken:

- Construct 680m of steel pipe network from the channel to the outlet (Ref Dwg No. RA 26000, RA 26004).
- Capturing the water at the end of the channel by way of a grid inlet into a piped system.
- Constructing a safe outlet structure with energy dissipaters as well as gabion mattresses to mitigate erosion into the existing stormwater drainage just before R59 highway.
- Providing a level monitoring and management system that has an alternative power supply.

1.5 Operation Phase

The proposed overflow pipeline will require minimal maintenance work when required in terms of routine maintenance on structural integrity and also the cleaning of the stormwater drains.

1.6 Decommissioning Phase

The infrastructure will be decommissioned once it has reached the end of its economic life or is no longer required. The generic decommissioning activities would comprise of, site preparations, blasting of the pipeline and removal of debris from site and rehabilitation. However, it must be noted that, a decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time and not envisaged. If a decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.

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

Listed activity as described in GN 983, 984 and 985	Description of project activity
<p>GN 324, Listing Notice 3, Activity 12:</p> <p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance undertaken in accordance with a maintenance plan.</p> <p>C. Gauteng</p> <p>i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the</p>	<p>The proposed Meyersdal Reservoir overflow pipeline will occur within a Critical Biodiversity Area and an Ecological Support Area identified in the Gauteng Conservation Plan, thus requiring an environmental authorisation subsequent to the Basic Assessment Process.</p>

<p>NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans; or</p> <p>iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.</p>	
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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 Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and 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) Site alternatives

Not Applicable

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

The proposed route of the overflow pipeline starts from the south end of the reservoir moving westerly along the perimeter of the site. As the pipeline reaches the corner of the access route (bottom left hand corner of the perimeter) it diverts in a northerly direction for approximately 198m thereafter turning left. The pipeline thereafter moves along the access route for approximately 450m connecting to the storm water infrastructure along Michelle Avenue in the process.

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° 17' 06.49" S	28° 05' 28.38" E
26° 17' 01.19" S	28° 05' 21.42" E
26° 17' 04.98" S	28° 05' 12.72" E

Alternative S2 (if any)

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

26° 17' 06.49" S	28° 05' 28.38" E
26° 17' 01.19" S	28° 05' 21.42" E
26° 17' 04.98" S	28° 05' 12.72" E

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.

A table has been attached as **Appendix A4** with all the proposed route coordinates in relation to alignment layout.

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 of this form.

b) Lay-out alternatives

Alternative 1		
Alternative 2		

c) Technology alternatives

Alternative 1 (preferred alternative)
The proposed solution to divert the overflow water away from the affected properties as well as safely discharge this overflow water into the existing natural Earth channel along Michelle Avenue. The approach and methodology is to divert overflow water away from the Meyersdal Nature Estate by way of a 680m steel pipe network. Capture the water at the end of the pipeline by way of a grid inlet into a piped system. Construct a safe outlet structure with energy dissipaters as well as gabion mattresses to mitigate erosion into the existing storm water drainage just before the R59 highway.
Alternative 2
The alternative solution is to construct an open lined channel of approximately 400mm in diameter. Open lined channels are quick but costly to construct. Channels provide for flood control by allowing flood waves to pass more freely downstream. The lined channel will be constructed along the steep side of the hill from the reservoirs to the toe of the hill (to minimise the cost of deep excavations into the hard rock) connecting into the existing stormwater infrastructure along Michelle Avenue.
Alternative 3
None

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)		
Alternative 2		
Alternative 3		

e) **No-go alternative**

This is the option of not constructing the proposed pipeline. This option is assessed as the “no go alternative” in this Basic Assessment Report (Section D and Appendix F), against which the project impacts are assessed. If the project does not proceed, there will still be a need for to address flooding and safety concerns with regards to damage of property from Rand Waters’ Meyersdal Reservoir. The site will remain unchanged and there will be neither opportunities for temporary employment nor a safe and permanently accessible route to Rand Waters’ essential operation sites.

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):

Alternative:

- Alternative A1¹ ()
- Alternative A2 (if any)
- Alternative A3 (if any)

Size of the activity:

	m ²
	m ²
	m ²

or, for linear activities:

Alternative:

- Alternative A1 (Preferred site layout)
- Alternative A2 (Alternative site layout)
- Alternative A3 (if any)

Length of the activity:

	±680m
	±680m
	m

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

Alternative:

- Alternative A1 (Preferred site layout)
- Alternative A2 (Alternative site layout)
- Alternative A3 (if any)

Size of the site/servitude:

	m ²

4. SITE ACCESS

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

YES	
	m

Describe the type of access road planned:

The proposed site falls within the jurisdiction of the Meyersdal Nature Estate therefore access to the site initially would mean using the existing road networks within the estate itself. In terms of the proposed pipeline route, a dirt road has been cleared by the Nature Estate to accommodate trail drives and walks for residences. These dirt roads follow the same route as the proposed pipeline and will be used as access routes during the construction, rehabilitation and operational phase.

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. **See Appendix A and Figure 2.**

¹ "Alternative A." refer to activity, process, technology or other alternatives.



Figure 2: Map showing access routes (cleared areas used for trails) to site, with the proposed route corridor shown in orange and the existing drainage pipe shown in blue.

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).

An A3 Locality Map is attached within **Appendix A**.

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.

An A3 Layout Map is attached within **Appendix A**

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 DWS);
- 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**.

A sensitivity map is attached within **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.

Colour photographs taken on site together with a description of each photograph are attached within **Appendix B**.

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.

The facility illustration is enclosed within **Appendix C**

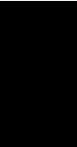
10. ACTIVITY MOTIVATION



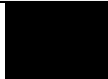
Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓	[REDACTED]	Please explain
The proposed overflow pipeline from Ekurhuleni reservoir located on Portion 187 Meyersdal, the aforementioned area is approximately 61 000m ² . The reservoir belongs to Ekurhuleni Metropolitan Municipality and is supplied water by Rand Water from Palmiet Pump Station. The servitude under which the pipeline will be constructed is within the jurisdiction of Rand Water and Meyersdal Nature Estate.			

2. Will the activity be in line with the following?		
(a) Provincial Spatial Development Framework (PSDF)	YES ✓	Please explain
<p>The Gauteng PSDF is a provincial and strategic planning policy that responds to and complies with in particular the National Development Plan vision 2030 and the National Spatial Development perspective (NSDP). This framework promotes a developmental state in accordance to the principals of global sustainability as is stated by among others, the South African constitution and enabling legislation. The Gauteng PSDF is based on six growth and development pillars, each of which has its onset of drivers with long term-programmes. Pillar 1 highlights the job creation by expanding and maintaining road infrastructure. The proposed development will create jobs opportunities during the construction phase, these employment opportunities will target local community members that are usually excluded from mainstream economic and formal employment. Therefore the development is in line with the Gauteng PSDF. Additionally the project will also assist with integration of economically disadvantaged communities and the project shall also ensure that there is uninterrupted service delivery from Rand Water.</p>		
(b) Urban edge / Edge of Built environment for the area	YES ✓	Please explain
<p>The proposed development falls within the urban edge however the development falls within a privately owned estate which will not have an accumulative effect on the urban edge.</p>		
(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?).	NO ✓	Please explain
<p>According to the status quo published in the IDP 2017-2018 for the Ekurhuleni Metropolitan Municipality, water, sewer and electrical services - all need expansion, specifically in the north-eastern and southern sectors of the metro. Furthermore, according to the IDP, the first major strategic objective is to promote integrated human settlements through massive infrastructure and services roll out. Part of these roll on projects include construction of reservoirs with a key focus on ensuring security of supply. As such the project will protect water resources creating sustainability within the municipality (in line with Strategic Objective 4). The project will also be well aligned to the water demand initiative to reduce water losses within the municipality. Additionally the job creation and skills transfer will occur during the construction phase of the project. Increased employment and skills transfer is aligned with the Municipalities Development Plans and Strategic Objective 5.</p>		
(d) Approved Structure Plan of the Municipality	NO ✓	Please explain
<p>The municipality has rolled out large scale projects to deal with upgrades to existing infrastructure. In line with that objective, the Meyersdal Reservoirs are being upgraded to cope with additional water loads ensuring both water security and reducing potential damage to property through flooding. The Municipality aims at ensuring that citizens have continual access to basic services such as water and this project will aid Rand Water an Organ of State that supplies potable quality water to operate effectively. The project shall also result in a more stable and reliable source of water for rural communities.</p>		
(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?)	NO ✓	Please explain
<p>The proposed project falls within a Critical Biodiversity Area (CBA) and Ecological Support Area as identified by the Gauteng Conservation Plan. The EMF released by Ekurhuleni states that biodiversity in the EMM area is under a lot of pressure from certain human activities. The conversion of natural habitats into man-made structures has fragmented the natural Grasslands in the EMM. However since the proposed project consists of a pipeline through a relatively disturbed environment it will not compromise the existing environmental management priorities. Any negative impacts can be mitigated to acceptable levels. In addition the positive impacts would outweigh the negative impacts.</p>		

(f) Any other Plans (e.g. Guide Plan)		NO ✓	Please explain
None Applicable			
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)?		NO ✓	Please explain
<p>Within the Ekurhuleni IDP 2016-2017, a large budget has been allocated towards urban restructuring and upgrading of existing reservoirs. Thus a large emphasis has been placed within the IDP on water supply systems and implementing corrective measures to repair and reinstate working capacities of these structures. Resultantly the proposed project falls in line with the programmes and projects identified as priorities within the IDP. As part of the key focus areas for the term (IDP, 2017) – social wellbeing and resource sustainability forms part of the central points. Breaking down into these points – both sustainable water use activities and empowering social service delivery is part of the interventions proposed for 2017/21 according to the IDP and is achieved within the objectives of the proposed project.</p>			
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.)	YES	✓	Please explain
<p>Ekurhuleni's District Municipality's Meyersdal Water reservoirs often overflow due to the oversupply of water pumped from Rand Water's Palmiet Pump Station. The pump Station and the reservoirs do not have a mechanism of communicating the water level in the reservoirs for the pumps to start pumping when full. Often, the reservoirs overflow when full and the pumps are not stopped on time thus causing flooding downhill of the reservoirs. The flood causes extensive damage on private properties within the adjoining Meyersdal Nature Estate and other neighbourhoods. In terms of societal priority, Rand Water will divert the overflow water away from the affected properties and neighbourhoods as well as safely discharge the water without causing erosion and damage to the environment.</p>			
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.)	YES	✓	Please explain
<p>The construction of the pipeline will not place additional pressure on the local area or Municipality during construction or operation phase of the development. The need and desirability of the project is in fact to assist the Municipality to cope with the additional capacity of water surging into the reservoir.</p>			
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.)	YES	✓	Please explain
<p>The municipality has rolled out large scale projects to deal with upgrades to existing infrastructure. In line with that objective, the Meyersdal Reservoirs are being upgraded to cope with additional water loads ensuring both water security and reducing potential damage to property through flooding. The Municipality aims at ensuring that citizens have continual access to basic services such as water and this project will aid Rand Water, an Organ of State that supplies potable quality water, to operate effectively. The project shall also result in a more stable and reliable source of water for rural communities.</p>			

7. Is this project part of a national programme to address an issue of national concern or importance?	YES ✓	NO	Please explain
<p>Clean drinking water and sanitation are essential to the realisation of all human rights. Water supply and sanitation in South Africa is characterised by both achievements and challenges. After the end of Apartheid South Africa's newly elected government struggled with the then growing service and backlogs with respect to access to water supply and sanitation. The government thus made a strong commitment to high service standards and to high levels of investment subsidies to achieve those standards. Since then, the country has made progress with regard to improving access to water supply. The Organ of State mandated to provide clean quality water is RW. The main purpose of the overflow pipeline is to provide supporting infrastructure to ensure that water does not cause damage to property and infrastructure. This will aid RW to meet its target objectives at intermittent times during which increased reservoir capacities occur. The provision and access of uninterrupted potable water is an issue of national importance.</p>			
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.)	YES ✓		Please explain
<p>The Ekurhuleni Metropolitan Municipality receives water at its existing Meyersdal water reservoirs (situated on the Meyersdal Nature Estate) through a pumping main from the Palmiet Pump Station. At the present stage the level control management system is unusable due to power supply restrictions. The current system is dependent on electricity; however, the power supplier Eskom requires that the pump station shut down during peak domestic demand times. Therefore, during peak demand hours no level control system exist which allows for overflowing to prevail. There is also no defined drain channel from the reservoir area to a municipal drainage system that could safely drain reservoir overflows.</p> <p>The project thus attempts to address the need for the pipeline at the current location in order to solve the problem. Furthermore, most of the works are to be carried out within the servitude of the O5 pipelines that currently supply the reservoirs. Since the problem is site specific, location factors favour this land use.</p>			

9. Is the development the best practicable environmental option for this land/site?	YES ✓		Please explain
<p>The development involves the construction of a 650m steel pipeline within the Meyersdal Nature Estate. The land use of the extent of the route is open space residential area whilst surrounded by residential developments. The entire proposed route passes by privately owned properties. Once in place, the pipeline is unlikely to significantly disrupt activities within the estate.</p> <p>The following objectives were considered in order to identify the most preferred route option:</p> <ul style="list-style-type: none"> - Avoid the potential litigations emanating from property owners whose properties get damaged as a result of flooding. - Diverting the overflow water away from the affected properties as well as safely discharging the water without causing erosion and damage to the environment. <p>The assessments of impacts within this Basic Assessment conclude that the development within the corridor investigated will have medium-low to low environmental impacts. Taking into consideration the above and the specialist assessments the proposed pipeline route is the option that provides the least damage to the environment, as a whole, at acceptable cost, in the long term as well as in the short term. It can therefore be concluded that it is indeed the best practicable environmental option for this site.</p>			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓		Please explain
<p><u>Negative impacts</u></p> <p>The identified potential negative impacts such as removal of vegetation, increased runoff and erosion are of low to medium impact significance and can be effectively managed to have a very low impact significance provided the mitigation measures proposed in the project EMPr are implemented.</p> <p><u>Positive impacts:</u></p> <ul style="list-style-type: none"> - Mitigate the risk of flooding to properties downhill. - Safely discharge water without causing erosion and damage to property. - Improvement to infrastructure to cope with larger supply demands in the near future. <p>The project shall also ensure inclusivity which aims to integrate the municipality with regards to reservoir management. It can therefore, be concluded that the benefits of the proposed development outweigh the negative impacts.</p>			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?		NO ✓	Please explain
<p>The proposed pipeline is associated specifically with the Meyersdal Reservoir which receives water directly from the Palmiet Pump Station. Any other similar activities in the area would depend on the feasibility of developing additional pipeline routes in this area. Rand Water's operations require uninterrupted access in a safe mannerly order to achieve its mandate set out by Government in terms of service delivery and provision of potable water. It is not envisaged a similar activity within the municipality will be supported by the same requirement to achieve a mandate to serve the people of South Africa.</p>			

12. Will any person's rights be negatively affected by the proposed activity/ies?		NO ✓	Please explain
The proposed access route will not negatively affect any person's rights. The servitude rights for the linear project will be acquired by RW.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO ✓	Please explain
The site is outside of the urban edge and will not impact on the urban edge of the built environment in any way.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?		NO ✓	Please explain
The proposed activity will contribute to SIP 18: Water and Sanitation Infrastructure Master Plan which seeks to improve overall infrastructure capability. Water and sanitation infrastructure ensures Rand Water's critical operations remains at all times without any interruptions that maybe caused by inaccessibility. The project may contribute to SIP 6: Integrated municipal infrastructure projects as the proposed project will improve bulk water and sanitation infrastructure and ensure service delivery and thereby positively impact the population.			
15. What will the benefits be to society in general and to the local communities?	Please explain		
The Organ of State mandated to provide clean quality water is RW. The main purpose of the pipeline is to provide supporting infrastructure to ensure access to RW's critical operation sites in order for Rand Water to achieve its mandate. The project shall assist in achieving the performance areas as identified by the Local Municipality, namely creation of more employment opportunities as well as through the improvement of service delivery to communities and thereby improving quality of living which is further aligned with achieving the goal of opportunity in terms of economic growth and employment which also entails access to basic services, social infrastructure and quality environment. Furthermore, the Municipality aims to achieve inclusivity which aims to integrate communities and improve overall infrastructure in terms of distribution of water.			
Further the proposed project shall benefit society and the local community in terms of:			
<ul style="list-style-type: none"> • Social positive impacts: The construction phase will lead to positive social benefits, such as job creation and the establishment of related small businesses such as waste collection and transportation. • The project shall assist in achieving improvement of public services and service delivery and thereby improving quality of living (with regards to safety) which is further aligned to access to basic services, social infrastructure and quality environment. • The project shall also ensure floods caused by the overflow from the reservoir are attenuated adequately causing less damage to the surrounding environment 			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
The proposed project will aid RW to ensure that quality water is readily available to the community and the broader region. In light of the large amount of electrical capacity needed to use the level control management system, the overflow pipeline will channel the water from the reservoir into the existing stormwater network independent of electricity. Resultantly, large amounts of electricity will be saved which will enable less stress to be placed on the grid within Ekurhuleni Metropolitan Municipality.			

17. How does the project fit into the National Development Plan for 2030?	Please explain
<p>The National Plan 2030 aims to achieve, (eradicate the high unemployment rate in the country): i.e. unemployment rate should fall from 24.9 percent in June 2012 to 14 percent by 2020 and to 6 percent by 2030. The proposed development contributes towards this vision by creating employment opportunities and skills development during the construction phase in a country in which unemployment rates are high and in which job creation is encouraged in all spheres of government. After construction, some of the community members can look for jobs elsewhere if there is an opportunity because of the skills they would have acquired during construction. The project shall assist in achieving improvement of public services and service delivery, thereby improving quality of living which is further aligned to access to basic services, social infrastructure and quality environment. One of the objectives of the national development plan 2030 is for all South Africans to have social equity through expanded access to water and sanitation services. Thus; the proposed project is aimed at fulfilling this objective by ensuring continued water supply.</p>	

18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

The IEM guidelines encourage a pro-active approach to sourcing, collating and presenting information in a manner that can be interpreted at all levels. The basic principles underpinning IEM are that there be:

- informed decision-making;
- accountability for information on which decisions are taken;
- accountability for decisions taken;
- a broad meaning given to the term environment (i.e. one that includes physical, biological, social, economic, cultural, historical and political components);
- an open, participatory approach in the planning of proposals;
- consultation with interested and affected parties;
- due consideration of alternative options;
- an attempt to mitigate negative impacts and enhance positive aspects of proposals;
- an attempt to ensure that the 'social costs' of development proposals (those borne by society, rather than the developers) be outweighed by the 'social benefits' (benefits to society as a results of the actions of the developers);
- democratic regard for individual rights and obligations;
- compliance with these principles during all stages of the planning, implementation and decommissioning of the proposals (i.e. from 'cradle to grave'); and
- The opportunity for public and specialist input in the decision-making process.

The general objectives of Integrated Environmental Management have been taken into account during the current process through the following:

- The potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks, consequences, alternatives and options for mitigation of activities, with a view to minimizing negative impacts, maximizing benefits and promoting compliance with the principles of environmental management. Mitigation measures for minimising negative impacts and enhancing positive impacts are detailed in the Environmental Management Programme (EMPr).
- The effects of the activity on the environment have been considered before actions taken in connection with them. The effect of the proposed project on the environment is detailed in the Impact Assessment section, which identifies potential impacts and ranks their significance before and after mitigation measures are implemented.
- Adequate and appropriate opportunity for public participation has been ensured throughout the public participation process as follows:
 - Posters along the route; Newspaper adverts; Engagement with stakeholders; Public meeting; and Comments and response report as part of final BAR.
- Comprehensive Impact Assessment has been undertaken as part of the BAR.
- Sufficient information has been provided such that the environmental attributes can be considered in the decision-making process.

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The principles of environmental management as set out in section 2 of NEMA have been taken into account. As follows:

- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied. Through the location of the pipeline confined within a relatively transformed environment and in close proximity to the existing reservoir and O5 pipeline, impacts on the aspects listed above have been minimised, further mitigation measures and recommendations from specialists have been taken into account to further reduce the potential impact.
- Where an environmental impact cannot be avoided, it is minimised and remedied. This is achieved through the location of the project within an already transformed landscape (avoidance of impacts), and the recommendation of mitigation measures which will be achieved through the implementation and adherence to the EMP.
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied. Through the location of the pipeline in close proximity to the RW operational reservoir, the impacts have been minimised.
- The interests, needs and values of all interested and affected parties have been taken into account in all decisions throughout the Public Participation Process.
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the advantages and disadvantages.
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option.
- All efforts are being made to ensure that the project achieves sustainability, environmental justice and that the environmental rights of Interested and Affected Parties (local stakeholders, communities and the construction employees) are protected. This will be achieved by Rand Water and its' appointed Contractors through the implementation of the recommendations provided by the Basic Assessment Report, the project's Environmental Management Programme and Environmental Authorisation.

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
National Environmental Management Act, 1998 (Act No. 107 of 1998): EIA	In terms of LN3 GNR 324, 7 April 2017, a Basic Assessment process is required to be	Department of Environmental Affairs (DEA)	1998

<p>Regulations have been promulgated in terms of Chapter 5. Activities which may not commence without an environmental authorisation are identified within these Regulations.</p> <p>In terms of Section 24(1) of NEMA, the potential impact on the environment associated with these listed activities must be considered, investigated, assessed and reported on to the competent authority (the decision-maker) charged by NEMA with granting of the relevant environmental authorisation.</p>	<p>undertaken for the proposed project.</p>		
<p>The Constitution of South Africa (Act No 108 of 1996)</p>	<p>Protection of human rights and environment of the study area.</p>	<p>National and Provincial</p>	<p>1996</p>
<p>National Environmental Management Act (Act No 107 of 1998): In terms of the Duty of Care provision in S28(1) the project proponent must ensure that reasonable measures are taken throughout the life cycle of this project to ensure that any pollution or degradation of the environment associated with this project is avoided, stopped or minimised.</p> <p>In terms of NEMA, it has become the legal duty of a project proponent to consider a project holistically, and to consider the cumulative effect of a variety of impacts.</p>	<p>Protection of the environment of the study area and surroundings. While no permitting requirements arise from this section of the Act, this will be applicable during construction and operation in order to ensure minimisation of impacts on the environment. The EMPr provides guidance and mitigation measures for all phases of the project in order to ensure the impacts caused by the project are mitigated and remediated. Thus the EMPr addresses pre construction phase, construction and post construction (rehabilitation) and operational phase requirements.</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>1998</p>
<p>National Environmental Management: Biodiversity Act 2004 (Act 10 of 2004) ; This Act provides management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act 107 of 1998; the protection of species and ecosystems that warrant national protection and the sustainable use of indigenous biological resources.</p>	<p>Protection of biodiversity features and where possible relevant permits will need to be obtained. Prior to, during and post construction the management of conservation of areas of biodiversity sensitivity shall be protected and sustainable utilised.</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>1998</p>

<p>National Environmental Management: Waste Act (Act No. 59 of 2008): The NEMA: WA came into effect on the on 1st July 2009. Section 20 of the Environment Conservation Act 73 of 1989, under which waste management was previously governed, was repealed. In general, the Act seeks to ensure that people are aware of the impact of waste on their health wellbeing and the environment, and in the process giving effect to Section 24 of the constitution, in ensuring an environment that is not harmful to health and wellbeing.</p>	<p>No waste license activities are applicable to this project. The developer will, however, be required to store and manage waste in accordance with the requirements of this Act and associated Standards.</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>2009</p>
<p>Promotion of Access to Information Act, 2000 (Act No 2 of 2000): Legislation that allows the public access to information about activities that influence their well-being and to make contributions to decision making.</p>	<p>The act finds applicability during the public participation process phase of the basic assessment process.</p>	<p>Department of Environmental Affairs (DEA)</p>	<p>2000</p>
<p>National Environmental Management: Air Quality Act (Act No 39 of 2004).</p> <ul style="list-style-type: none"> • S18, S19 and S20 of the Act allow certain areas to be declared and managed as “priority areas” • The Act provides that an air quality officer may require any person to submit an atmospheric impact report if there is reasonable suspicion that the person has failed to comply with the Act. • Dust Control Regulation Control Regulations, R. No. 827 of 1 November 2013. 	<p>Protection of air quality through dust minimisation and dust suppression measures. While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project. Dust control regulations promulgated in November 2013 will need to be adhered to through the implementation of the project EMPr.</p>	<p>National Department of Environmental Affairs Local authority, i.e. Ekurhuleni Metropolitan Municipality</p>	<p>2004</p>
<p>National Heritage Resources Act (Act No 25 of 1999). Section 38 states that Heritage Impact Assessments (HIAs) are required for certain kinds of development including</p>	<p>Protection of heritage resources surrounding the study area and those uncovered during the development phase by reporting to the nearest heritage authority. No identified heritage sites were</p>	<p>South African Heritage Resources Agency (SAHRA) The Provincial Heritage Resources Authority</p>	<p>1999</p>

<p>(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length.</p>	<p>reported on site. However, should any heritage sites be unearthed during excavations, a permit would be required to be obtained from SAHRA.</p>	<p>Gauteng (PHRAG)</p>	
<p>Conservation of Agricultural Resources Act (Act No 43 of 1983)</p> <ul style="list-style-type: none"> • Prohibition of the spreading of weeds (S5) • Classification of categories of weeds and invader plants and restrictions in terms of where these species may occur - Regulation 15 of GN R1048 and Regulation 598 GN 37885 of NEM:BA (Act No. 10 of 2004). 	<p>This Act will find application throughout the life cycle of the project. In this regard, soil erosion prevention and soil conservation strategies must be developed and implemented. In addition, a weed control and management plan must be implemented.</p>	<p>National Department of Agriculture, Forestry and Fisheries (DAFF)</p>	<p>1983</p>
<p>National Water Act (Act No 36 of 1998)</p> <p>National Water Act aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. This requires that the quality of water resources is protected as well as integrated management of water resources with the delegation of powers to institutions at the regional or catchment level. The purpose of the Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled.</p>	<p>Protection of water resources and where possible relevant approvals to be obtained.</p>	<p>Department of Water and Sanitation</p>	<p>1998</p>
<p>Occupational Health and Safety Act No. 85 of 1993.</p> <p>The Occupational Health and Safety Act provides for the health and safety of persons at work and for the health and safety of persons.</p>	<p>While no permitting or licensing requirements arise from this legislation, this Act will find application during the construction phase of the project. Healthy and safety precautions measures must be put in place for the construction crew and the public.</p>	<p>Department of Labour</p>	<p>1993</p>
<p>National Road Traffic Act (No 93 of 1996)</p>	<p>Compliance to traffic laws By driving at minimal speed approved by local authorities.</p>	<p>National and Provincial</p>	<p>1996</p>

All relevant Provincial regulations and Municipal bylaws	The Contractor will obey and abide by provincial and municipal bylaws which are related to the proposed project.	Provincial and Local	
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12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?
If YES, what estimated quantity will be produced per month?

YES ✓	
Could not be determined at this stage m ³	

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

Small quantities of solid waste will be generated during the construction phase of the project. This waste will be disposed at a licensed waste facility.

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

General waste removed from site will be disposed of at a suitably licensed disposal facility. The nearest licensed landfill site is the Goukoppies Landfill in Soweto or alternatively the Robinson Deep Landfill in Turffontein. Safe disposal certificates must be obtained and kept on site for the duration of the construction phase.

Will the activity produce solid waste during its operational phase?

	NO ✓
m ³	

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

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

No solid waste will be produced during the operational phase of the proposed project.

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

During construction a registered landfill sites e.g. the Goudkoppies Landfill in Soweto can be used as they still have capacity and no waste will be generated during the operation phase. If this landfill cannot be used an alternative landfill site is the Robinson Deep Landfill in Turffontein.

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?

	NO ✓
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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?

	NO ✓
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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?

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

	m ³
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Will the activity produce any effluent that will be treated and/or disposed of on site?

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

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

	NO ✓
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If YES, provide the particulars of the facility:

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

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

<p>The following measures could be put in place to ensure optimal reuse or recycling of waste water:</p> <ul style="list-style-type: none"> Sewage will be managed and/ or handled through the use of portable chemical ablution facilities. During the construction phase, measures may be put in place to separate dirty water from clean water. Water used within the construction process if tested and found to be within the required limits may be used for dust suppression.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

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

	NO ✓
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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:

<p>During the construction phase, it is expected that there will be short term, localised dust generation and vehicular emissions e.g. carbon dioxide, carbon monoxide from movement of vehicles. However the dust and emissions will be of short term duration and have limited impact in terms of extent and severity. Appropriate dust mitigation measures must be implemented to reduce the impacts. It is recommended that vehicles be kept in good operating mechanical conditions in order to minimise possible exhaust emissions. 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.</p>

d) Waste permit

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

	NO ✓
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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?

NO ✓

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

Describe the noise in terms of type and level:

Minimal noise will occur during the construction phase by moving vehicles and operating machinery. This is not regarded as a significant noise source/impact and will not constitute a “disturbing noise”.

Noise will be short term, localised and will last during the construction phase of the project. The noise level is anticipated to be less than 50dBA as required by SANS 10103 and thus authorisation will not be required for the noise.

13. WATER USE

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

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

N/A litres

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

NO ✓

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

14. ENERGY EFFICIENCY

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

The development will not require power supply during its operation phase. However, generators will be used as a source of power where needed during the construction phase.

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

Not applicable. The development is not an energy consumptive development and will not use energy for its continued operation.

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):

Alternative 1 and Alternative 2 follow the same corridor and occur in the same environment. Therefore this section will not be duplicated.

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

- Has a specialist been consulted to assist with the completion of this section? YES 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:

Province	Gauteng Province
District Municipality	Ekurhuleni Metropolitan Municipality
Ward Number(s)	Ward 106
Farm name and number	Meyersdal Nature Estate Erf 141 Ptn 0 Klipriviersberg Erf 106 Ptn 241
Portion number	Portion 0 + Portion 241
SG Code	TIR000000000141000000 + TIR00000000010600241

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:

The study area is surrounded by natural grassland, which is managed as a private nature reserve.

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? YES NO

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Proposed pipeline

Alternative 1: Preferred Site Layout

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5 ✓	1:7,5 – 1:5	Steeper than 1:5
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Alternative 2: Alternative Site Layout

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5 ✓	1:7,5 – 1:5	Steeper than 1:5
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Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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2. LOCATION IN LANDSCAPE

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

Preferred Site Layout (1) and Alternative Site Layout (2)

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 Seafont	<input type="checkbox"/>
2.10 At sea	<input type="checkbox"/>				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Access Road

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

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 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. GROUND COVER

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).

Preferred Site Layout (S1) and Alternative Site Layout (S2)

Natural veld in good condition ^E	Natural veld with scattered alien ^E ✓	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil (i)

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.

A specialist was consulted and the ecological specialist report is included within **Appendix D**

5. SURFACE WATER

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

Preferred Site Layout (S1) and Alternative Site Layout (S2)

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

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

Not applicable

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:

Preferred Site Layout (S1) and Alternative Site Layout (S2)

Natural area✓	Dam or reservoir✓	Polo fields
Low density residential	Hospital/medical centre	Filling station H
Medium density residential✓	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residentialA	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland (artificial wetland)
Light industrial	Sewage treatment plantA	Nature conservation area
Medium industrial AN	Train station or shunting yard N	Mountain, koppie or ridge
Heavy industrial AN	Railway line N	Museum
Power station	Major road (4 lanes or more) N	Historical building
Office/consulting room	Airport N	Protected Area✓
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes damA	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (pipeline alignment is earmarked as an "ecological support area" and as an "irreplaceable" habitat. Areas corresponding to an "irreplaceable" habitat provides habitat for a threatened <i>Asteraceae</i> species and untransformed ("primary") vegetation.)

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

Not Applicable

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:

Not Applicable

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:

Not Applicable

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

Preferred Site Layout (S1) and Alternative Site Layout (S2)

Critical Biodiversity Area (as per provincial conservation plan)		NO ✓
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

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:

YES ✓	
Uncertain	

According to the Heritage Impact Assessment, three stone walled structures dating to the Late Iron Age was noted. Based on the complexity of their design, a central cattle enclosure and the outer wall consisting of some irregular scallops for houses along with the typical small stock enclosures adjacent to it. It can probably be linked to the Bafokeng, a division of the Sotho-Tswana. These settlements might link up with the other similar settlement sites in the larger region.

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:

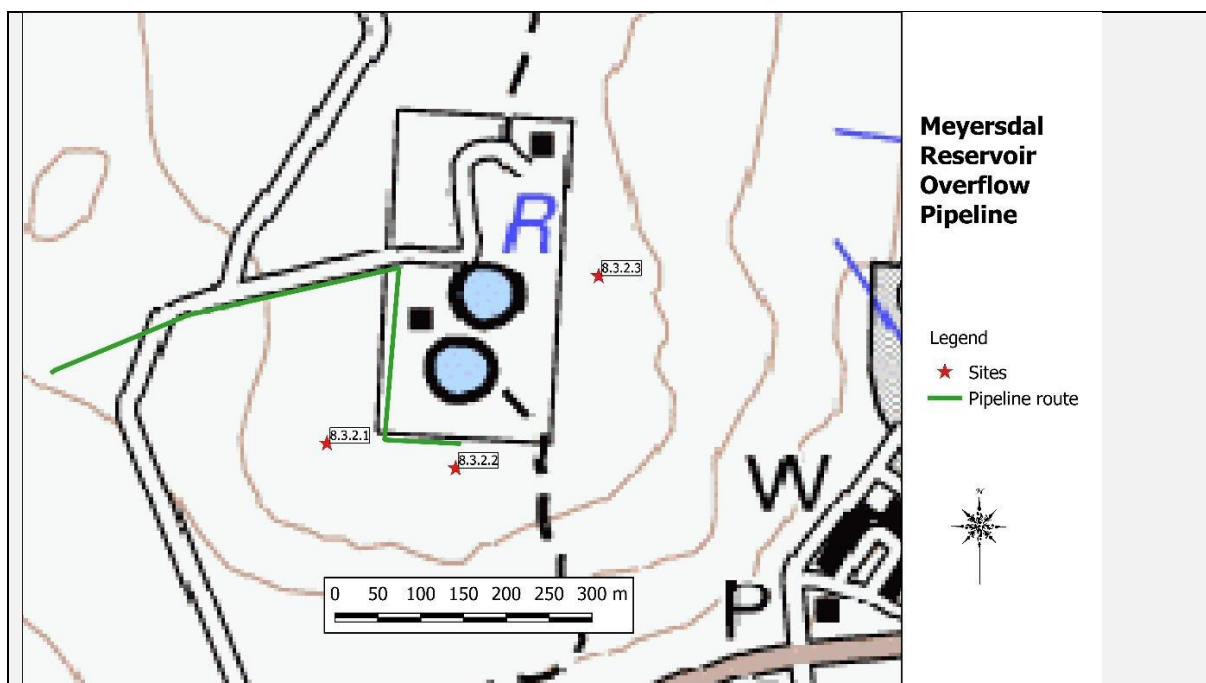


Figure 3: Heritage features found on site

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a grading as identified in the table below. The probable impact of the proposed development as calculated is also indicated in the same table.

Table :

NHRA category	Number	Coordinates	Impact rating
<i>Formal protections (NHRA)</i>			
National heritage site (Section 27)	None	-	-
Provincial heritage site (Section 27)	None	-	-
Provisional protection (Section 29)	None	-	-
Listed in heritage register (Section 30)	None	-	-
<i>General protections (NHRA)</i>			
Structures older than 60 years (Section 34)	None	-	-
Archaeological site or material (Section 35)	8.3.2.1	-26.28517, 28.09022	Medium
	8.3.2.2	-26.28548, 28.09156	Medium
	8.3.2.3	-26.28345, 28.09305	Low
Palaeontological site or material (Section 35)	None	-	-
Graves or burial grounds (Section 36)	None	-	-
Public monuments or memorials (Section 37)	None	-	-
<i>Other</i>			
Any other heritage resources (describe)	None	-	-

From a heritage point of view, it is recommended that the proposed development be allowed to continue on acceptance of the proposed mitigation measures.

For further details, please refer to the Heritage specialist report attached within Appendix D of this report.

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

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

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:

The annual per household income within the EMM is R163 676 which is higher than the national total being R143 599. The annual per capita income within the EMM is R51 589 whereas the national total is R38 446. In terms of employment, there are about 1.6 million economically active individuals residing within the municipality, of which 28.8% are unemployed.

Economic profile of local municipality:

The EMM's economy is driven primarily by two economic sectors which are manufacturing and aviation. The municipality is an important manufacturing center in South Africa and has been described as "the workshop of the country". O.R Tambo International Airport is situated within Ekurhuleni. South African Airways as well as Mango have their head offices within Ekurhuleni. Benoni's economy primarily driven by the industrial and services sectors. It is used as a service hub for other towns in the East Rand such as Brakpan, Nigel and Springs. Benoni is also the site of the Benoni Heliport; for the use of helicopters.

Level of education:

Approximately 41% of the EMM population has completed matric. In terms of school aged children, 90.9% are in school.

b) Socio-economic value of the activity

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

N/A

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

N/A

Will the activity contribute to service infrastructure?

YES ✓

Is the activity a public amenity?

NO ✓

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

It is not known at this stage.

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

It is not known at this stage.

What percentage of this will accrue to previously disadvantaged individuals?

It is not known at this stage.

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

It is not known at this stage.

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

N/A

What percentage of this will accrue to previously disadvantaged individuals?

N/A

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. 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)**

Preferred Site Layout (S1) and Alternative Site Layout (S2)

Systematic Biodiversity Planning Category	If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
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<p style="text-align: center;">Critical Biodiversity Area (CBA) ✓</p>	<p style="text-align: center;">Ecological Support Area (ESA) ✓</p>	<p style="text-align: center;">Other Natural Area (ONA)</p>	<p style="text-align: center;">No Natural Area Remaining (NNR)</p>	<p>According to C-Plan version 3 (GDARD, 2014), part of the pipeline alignment is earmarked as an "ecological support area" and as "irreplaceable" habitat. Areas corresponding to "irreplaceable" habitat provide habitat for a threatened <i>Asteraceae</i> species and untransformed ("primary") vegetation.</p> <p>Three broad-scale habitat types were identified on the study site:</p> <ul style="list-style-type: none"> • Untransformed <i>Acalypha angustata</i> - <i>Vernonia oligocephala</i> grassland - high ecological sensitivity; • Secondary <i>Hyparrhenia dregeana</i> - <i>Cynodon dactylon</i> grassland - medium ecological sensitivity; • Transformed/Rehabilitated <i>Hyparrhenia dregeana</i> - <i>Pennisetum clandestinum</i> mountain bushveld - low ecological sensitivity. <p>Six provincially protected plant species occur (e.g. <i>Gladiolus crassifolius</i>, <i>Bonatea antennifera</i>, <i>Pellaea calomelanos</i>, <i>Cheilanthes hirta</i>, <i>Cussonia paniculata</i> and <i>Scadoxus puniceus</i>).</p> <p>The andesite ridges and outcrops surrounding the pipeline alignment provide habitat for a high richness of threatened and near threatened mammal taxa, including an endangered butterfly. However, considering the close proximity of the pipeline alignment to transformed habitat and existing infrastructure, the presence of these species on the ecological footprint is intermittent and marginal.</p> <p>A number of invasive alien plant taxa are present within the transformed/rehabilitated mountain bushveld, including noteworthy taxa such as <i>Eucalyptus camaldulensis</i>, <i>Acacia dealbata</i> and <i>Tipuana tipu</i>.</p>
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Figure 4: The Proposed Site falls within only a small portion of the Critical Biodiversity Area with it predominantly falling in the Ecological Support Area.

b) Indicate and describe the habitat condition on site

Preferred Site Layout (S1) and Alternative Site Layout (S2)

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	50%	<p><u>Untransformed <i>Acalypha angustata</i> - <i>Vernonia oligocephala</i> grassland - Untransformed</u></p> <p>This vegetation association is primarily located along the western section of the proposed pipeline alignment. It differs from the secondary grassland units in having an exceptional high richness of herbaceous vascular plants (forbs) and graminoid composition dominated by many late-successional or "climax" species confined to clayey soils. It represents an untransformed grassland association, and covers approximately 0.5 Ha along the pipeline route which equates to 21% of the entire alignment. Total basal cover is approximately 96% and rock cover is low-moderate, varying from 1-10%. The unit is characterised by open graminoid structure with a high prevalence of forb species which is in some areas (mainly on adjacent grassland) interspersed by prominent andesite outcrops which provide refuge (against fires) for the development of woody bush clumps. The mean height (in meters) of the floristic structure (tree, shrub forb and graminoid layers) is as follow: 4 - tree, 1.9 - shrub, 0.9 - forb and 1.95 - grass. Structurally, this vegetation association can be described as Short Open Grassland, with a graminoid cover of more than 80 %. This species composition is representative of untransformed "Tsakane" Highveld Grassland (Mucina & Rutherford, 2006). Species richness was very high with a total of 104 species recorded. The mean species richness in the sample site was 45.5 species / 100m².</p>
Near Natural (includes areas with low to moderate level of alien invasive plants)	25%	<p><u>Secondary <i>Hyparrhenia dregeana</i> - <i>Cynodon dactylon</i> grassland – Semi Transformed</u></p> <p>This vegetation association was prominent along the road verges where historical disturbances were eminent and occur on the central section of the pipeline alignment. It represents grassland that has been subjected to anthropogenic activities (e.g. during the construction of the dirt road and is induced by frequent run-off and erosion along the road) and secondary edge effects caused by alien agrestal and annual weeds. The association covers 0.66 Ha, which equates to 28% of the entire pipeline area surveyed. The soils are yellowish and loamy while the total basal cover is approximately 91% and rock cover is low-moderate, varying from 1-10%. The unit is characterised by dense, tall graminoid structure with a low prevalence of forb species. The mean height (in meters) of the floristic structure (tree, shrub forb and graminoid layers) is as follow: 1.5 - tree, 1.2 - shrub, 0.7 - forb and 2.1 - grass. A total of 53 species was</p>

		recorded in secondary grassland during fieldwork, representing 40 % of the entire species list. A fair proportion of this species richness is represented by agrestal and alien weed species. The mean species richness in the sample site was 19.25 species / 100m ² (range = 17 - 22 species).
Degraded (includes areas heavily invaded by alien plants)	0%	No portion of the site is degraded to any extent.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	25%	<u>Transformed/Rehabilitated <i>Hyparrhenia dregeana</i> - <i>Pennisetum clandestinum</i> mountain bushveld</u> This unit occurs on the eastern section of the pipeline alignment and was entirely confined to the reservoir complex. It occurs on the top of a hill, which was historically part of the Andesite Mountain Bushveld prior to the installation of the reservoirs. However, subsequent to the installation of the reservoirs and post-development rehabilitation, effort has rendered the association reminiscent of a transformed and recovering composition consisting of many alien invader trees and secondary graminoid taxa. The association covers 0.91 ha of the pipeline alignment, which equates to 38% of the area surveyed. The total basal cover is approximately 80% and rock cover is high subsequent to the rehabilitation activities, varying from 20-30%. The unit is characterised by prominent woody canopy and a tall open graminoid layer. A total of 59 species was recorded in secondary grassland during fieldwork, representing 44 % of the entire species list. A fair proportion of this species richness is represented by alien tree and woody species. The mean species richness in the sample site was 21 species / 100m ² (range = 15 - 30 species).

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.

Preferred Site Layout (S1) and Alternative Site Layout (S2)

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

The study site corresponds to the Savanna Biome and more particularly to the Central Bushveld Bioregion as defined by Mucina & Rutherford (2006). It comprehends an ecological type known as Andesite Mountain Bushveld (Mucina & Rutherford, 2006). However, the plains are characterized by open grassland, which is reminiscent of the Grassland Biome (Mesic Highveld Grassland) and more particularly that of the Tsakane Clay Grassland. It is locally and collectively known as Kliprivier Highveld Grassland, which is a critically endangered

ecosystem. The study site exhibits three broad-scale habitat types, which range from untransformed grassland to transformed/rehabilitated mountain bushveld dominated by alien secondary plant taxa. In summary, based upon the findings of the assessment:

- The largest percentage of pipeline surface area consists of transformed/rehabilitated mountain bushveld and areas containing anthropogenic infrastructure (51.15 %).
- Approximately 27.92% of the pipeline surface area consists of secondary grassland. The floristic composition of the secondary grassland is dominated by secondary vascular plant species and ruderal weed species.
- Approximately 20.93% of the pipeline surface area consists of untransformed grassland. The forb richness and diversity of vascular plant taxa on the untransformed grassland was high.

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 site corresponds to the Savanna Biome and more particularly to the Central Bushveld Bioregion as defined by Mucina & Rutherford (2006). It comprehends an ecological type known as Andesite Mountain Bushveld (Mucina & Rutherford, 2006). However, the plains are characterized by open grassland, which is reminiscent of the Grassland Biome (Mesic Highveld Grassland) and more particularly that of the Tsakane Clay Grassland. It is locally and collectively known as Kliprivier Highveld Grassland, which is a critically endangered ecosystem.

Andesite Mountain Bushveld is a dense, medium-short thorny bushveld located on hills and ridges with an undulating topography. The graminoid layer is well developed, especially on the Highveld, where it often merges in to one of the prominent grassland types (sensu Tsakane Clay Grassland or locally Kliprivier Highveld Grassland) conforming to a short, dense grassland dominated by a mixture of common Highveld grasses such as *Themeda triandra*, *Elionurus muticus* and a range of *Eragrostis* species. Disturbances result in the dominance of *Eragrostis chloromelas* and *Hyparrhenia hirta*.

A map illustrating the conservation priorities of the study area, using C-Plan version 3 (GDARD, 2014), showed that part of the pipeline alignment is earmarked as an "ecological support area" and as "irreplaceable" habitat Areas corresponding to "irreplaceable" habitat provide habitat for a threatened Asteraceae species and untransformed ("primary") vegetation. Part of the pipeline alignment also corresponds to a Class 3 ridge system although most of the alignment falls within transformed land.

Three broad-scale habitat types representing untransformed grassland, transformed/rehabilitated Mountain Bushveld units and secondary (semi-transformed) grassland were identified on the study site. The spatial extent of each habitat type is given in Table 2. A shortlist of the plant composition representing each habitat type (or vegetation association) is provided in Appendix 1 and 2.

The most important grassland portions representing untransformed and "late-successional" Andesite Mountain Bushveld (or more precisely referring to Kliprivier Highveld Grassland) are located on the south-western extent of the proposed pipeline alignment. However, the transformed/rehabilitated Mountain Bushveld units represent approximately 38.4 % of the total surface area while all natural grassland represented 51.15 % of the total surface area.

The dominant plant species along the proposed pipeline alignment consists primarily of secondary and pioneer taxa that are commonly encountered along roadside verges and recently disturbed areas such as *Hyparrhenia dregeana*, *Cynodon dactylon*, *Bidens pilosa*, *Pennisetum clandestinum*, *Tagetes minuta* and *Sida dregei*.

A total of 134 plant species (two pteridophytes, 99 dicotyledons and 33 monocotyledons) represented by 43 families were recorded during this survey.

Approximately 45 mammal species are known to be sympatric to the study region (according to QDC 2628AC), of which eight are also introduced (many of these being antelope taxa as game species to the estate) and exotic (Domestic Cat *Felis catus* and House Mouse *Mus musculus*). Of these, 17 were confirmed during the site visit (38 % of the expected richness; While another 17 species have a high probability to occur in the area. Another seven species have a moderate probability of occurrence (16 % of the expected richness). The high richness of species is best explained by the intact surrounding habitat that is currently managed as a private reserve containing high spatial heterogeneities as provided by the andesite outcrops. The latter provide habitat for a number of species partial to undulating grassland or being rupicolous taxa. Three of the confirmed species has not been recorded in the area according to Mammal Map, which include the Highveld Mole-rat (*Cryptomys pretoriae*) and two introduced antelope species (Springbok *Antidorcas marsupialis* and Impala *Aepyceros melampus*).

Twelve (12) frog species are known to be sympatric to the study region . Ten (10) of these species have a high predicted probability of occurrence on the study area based on their widespread occurrence and their ability to breed in temporary rain-filled and man-made excavations/depressions. According to Minter *et al.* (2004), the amphibian richness on the study region is moderate (11-20 species) with a very low prevalence of endemic species (1 species). Therefore, the study site is not considered as an important amphibian diversity hotspot. Currently, none of the frog species predicted to be present are of conservation concern (Measey, 2010).

A total of 40 reptile taxa are known to be sympatric to the study region (according to QDC 2628AC) of which nine species are endemic to South Africa. According to the habitat types present, the reptile diversity on the study site is fairly high (Bates *et al.*, 2014) with one species, the Striped Harlequin Snake (*Homoroselaps dorsalis*) being near threatened (Bates *et al.*, 2014). Dominant species include Southern Rock Agama (*Agama atra*), Common Crag Lizard (*Pseudocordylus melanotus*), Yellow-throated Plated Lizard (*Gerrhosaurus flavigularis*), Cape Gecko (*Pachydactylus capensis*) and Speckled Rock Skink (*Trachylepis punctatissima*).

The endangered Roodepoort Copper (*Aloeides dentatis dentatis*) is known to be present in the study area according to collection records (Mecenero *et al.*, 2013). It is virtually endemic to Gauteng where it has a very restricted distribution confined to the ridges and hills of the Witwatersrand and Suikerbosrand mountain ranges. It primarily occurs on flat rocky grassland at approximately 1500 m.a.sl. It has also been recorded from both Andesite Mountain Bushveld and Tsakane clay Grassland and has been observed from the QDS 2628AC which is sympatric to the study area. It is known from only five localities, which are threatened by urban development and fire suppression even though three of the localities fall within protected areas. The larvae have a mutualistic association with the ant *Lepisiota capensis*, and its larval host plants include *Hermannia depressa* and *Lotononis eriantha*. The spatial proximity of its host plants and ant species is critically important for this species to complete its life cycle.

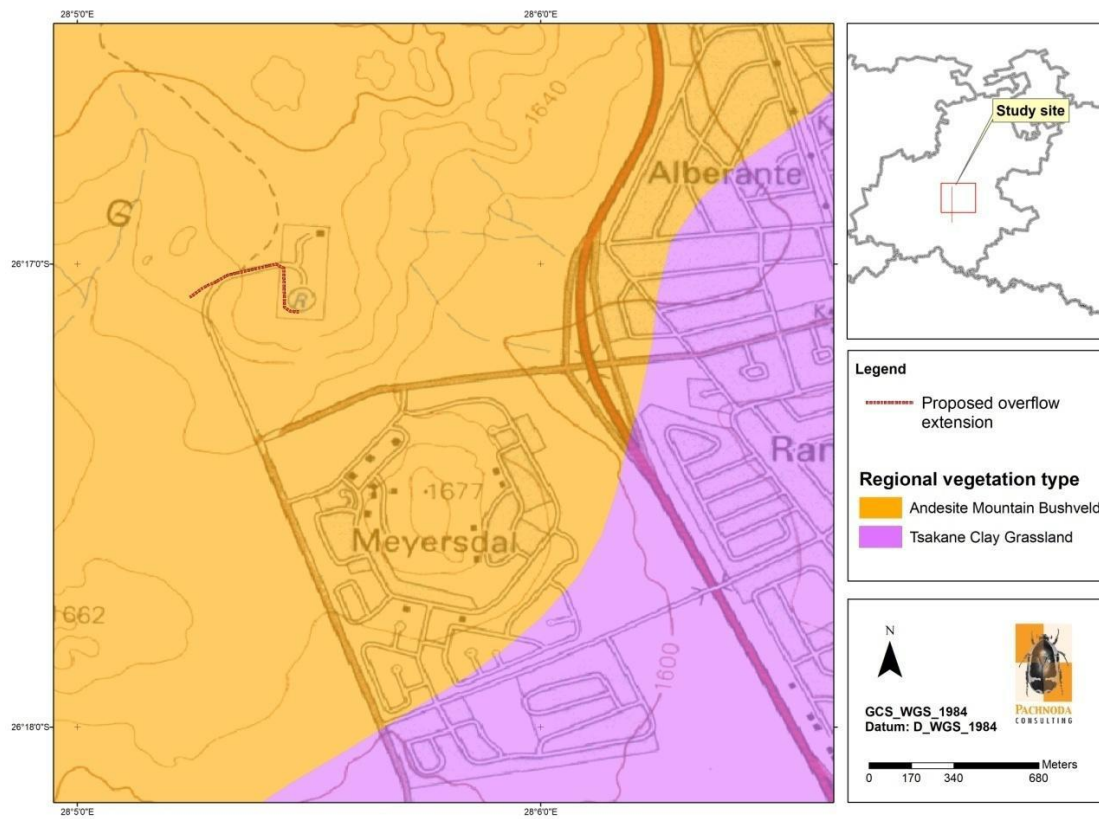


Figure 5: Vegetation and Biomes on the project site

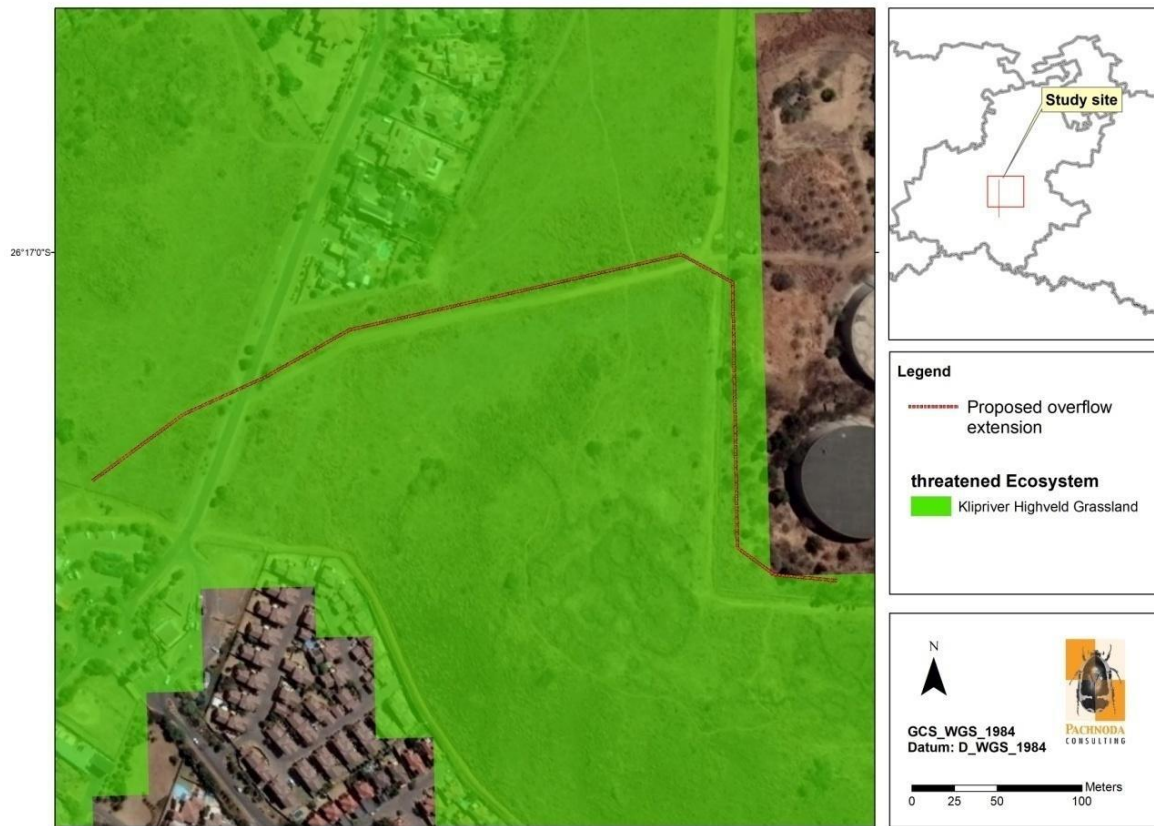


Figure 6: The spatial position of the proposed study site in relation to the remaining extent of a threatened ecosystem represented by a vegetation type locally known as Kliprivier Highveld Grassland.

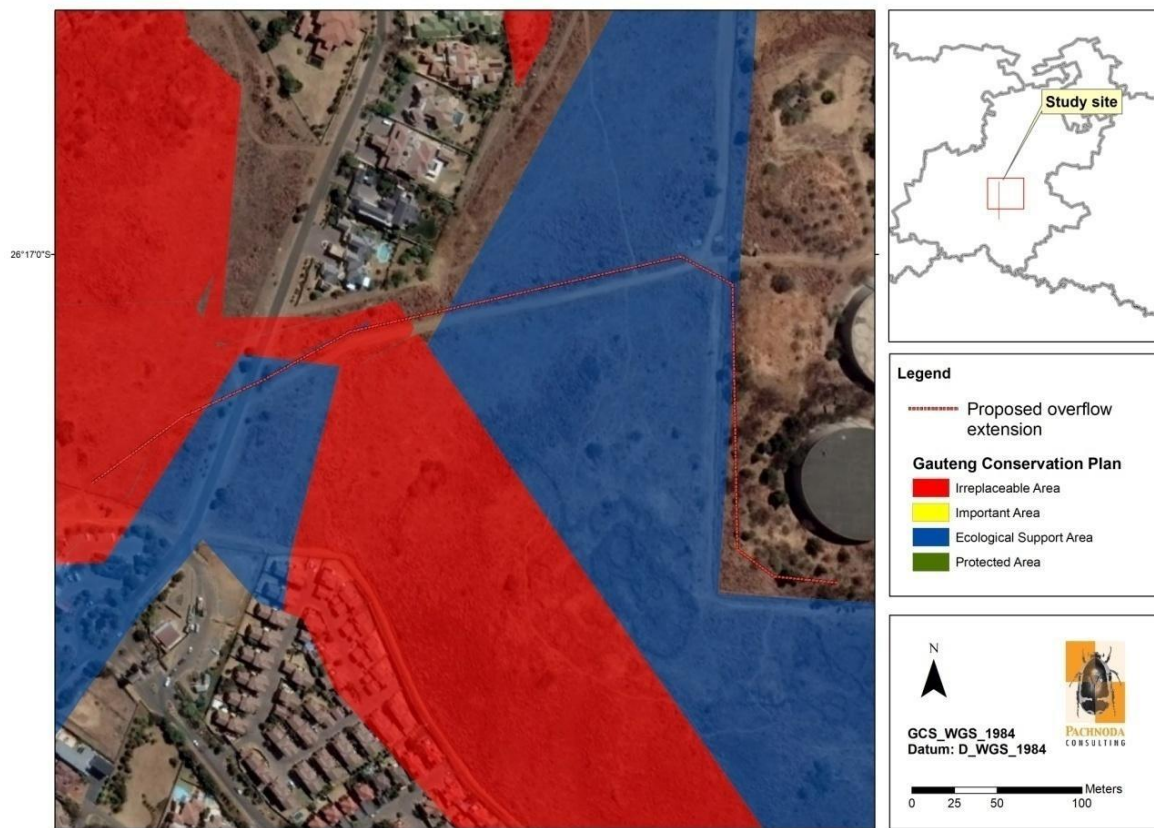


Figure 7: A map illustrating the conservation categories based on the Gauteng Conservation Plan, V.3 (GDARD, 2014).

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Alberton Record	
Date published	27 September 2017	
Site notice position	Latitude	Longitude
	Site Notice Position 1 Site Notice Position 2	26° 17' 00.21" S 26° 17' 09.74" S
Date placed	27 September 2017	

Proof of the placement of the relevant advertisements and notices are included within **Appendix E1**.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Wim Van Der Nest	Meyersdal Nature Estate – Estate Manager	manager@meyersdaleco.co.za

Since the activity occurs solely within the Meyersdal Nature Estate, the key stakeholders follows as the estate manager being the point of contact in the initial PP phase.

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

Summary of main issues raised by I&APs	Summary of response from EAP
- The Estate Manager, Mr Wim Van Der Nest indicated that the overflowing pipes should be channelled to the veld close to the estate dams to allow for game farming use when available.	- The EAP indicated that his comment will be addressed with Rand Water and factored into the Basic Assessment Report. Rand Water further responded in the form of a meeting (Appendix E6) of which the engineer from Rand Water – Mrs Thembisa Vendle indicated that an amendment to the design will take place to extend the wing wall on the

	road reserve to accommodate the comments from the estate manager.
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A detailed report is compiled in Appendix E3(b)- Comments and Response 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:- **is attached within Appendix E and not repeated here. Refer to Appendix E5 (Project Database)**

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Attached in Appendix E5					

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4. **Refer to 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, 2014 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.

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 and decommissioning phases of the proposed Meyersdal Overflow Pipeline is provided in the table overleaf. The impact assessment is undertaken for all components of the facility, including:

- Temporary lay down areas
- Pipeline route

1.1 PLANING AND DESIGN PHASE

No impacts are expected to result from Activities associated with the design and pre-construction phase pertains mostly to feasibility assessments undertaken mostly at a desktop level. Geotechnical surveys were undertaken with minimal impacts in terms of disturbance of vegetation and soils.

Assessment of impacts associated with the **Preferred Site Layout and Alternative Site Layout** during the planning and design phase.

Activity	Impact summary	Significance (with mitigation)	Proposed mitigation
Ecological impacts			
<ul style="list-style-type: none"> Use of vehicles during field survey 	Direct impacts <ul style="list-style-type: none"> Roads and vegetation impacts Disturbance of vegetation Disturbance of soil 	Very low	<ul style="list-style-type: none"> Demarcate areas where activities are to be undertaken and restrict activities to those areas. Limit clearance of vegetation as far as possible. Reinstate area following disturbance; Make use of existing access roads only.
	Indirect Impacts N/A		
	Cumulative impacts The overall cumulative impacts on ecology will be low to moderate considering the scale of the project and also the route corridor follows existing disturbed dirt roads and drainage lines	Negligible	Same as detailed above

1.2 CONSTRUCTION PHASE

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Construction Phase** of the proposed access road **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

Ecological Impacts (Fauna)				
The impact on fauna is expected to be medium to high. Presence of indigenous terrestrial vertebrates within the study area is high due to the proposed activity taking place within a nature reserve. Mammals that may be permanently present can be relocated or will move away during construction, and may resettle after construction, depending on safety specifications necessitated by the development. No restricted or specific habitat of vertebrates exists on the study area and will be affected by the proposed development.				
Activity	Impact Summary	Significance (after mitigation)		Proposed Mitigation
		Layout Alternative	S1	
Faunal Clearance of vegetation	<p>Direct impacts: Loss of untransformed and secondary habitat, species richness and displacement of threatened and near-threatened fauna. During construction activities, the potential loss of untransformed habitat may result in the loss of protected plant species and the subsequent displacement of fauna. It is evident that most of the large-bodied fauna species will vacate the construction area and take refuge at nearby similar habitat. However, small-bodied and less mobile fauna could become trapped in excavations and trenches.</p>	Medium	Medium	<ul style="list-style-type: none"> • Focus development on habitat of low ecological sensitivity and avoid areas of high ecological sensitivity, especially areas characterised by andesite outcrops or rocky grassland. • Contain machinery, earthmoving equipment and laydown areas to habitat identified with low ecological sensitivity. • Avoid dissecting (fragmenting) of untransformed grassland habitat (or the placement of roads within grassland habitat - make use of existing roads. • It is recommended that the pipeline infrastructure be aligned within the existing trench (drainage canal) which corresponds to the untransformed grassland unit. The pipeline should be positioned within the road reserve of the dirt road running alongside the secondary grassland habitat. • Appropriate storm water management features should
	<p>Indirect Impacts: Loss of species abundance and alteration of habitats which could possibly have long terms affects with the</p>			

	<p>overall ecosystem present at the estate.</p>			<p>be installed during construction to prevent excessive run-off of storm water (and potential erosion) into the surrounding grassland habitat (this could result in compositional floristic changes). Erosion and sediment control measures must be in place at all areas cleared of invasive species. Areas bare of vegetation must be re-vegetated with indigenous vegetation as soon as possible.</p> <ul style="list-style-type: none"> • An overspill of construction activities into adjacent areas should be prohibited. • Rehabilitation should make use of indigenous species, and preferably of species native to the study area and immediate surroundings. The species selected should strive to represent habitat types typical of the ecological landscape prior to construction. • All animals trapped in the pipeline trench should be captured and safely released. It is recommended that the construction area be screened for trapped animals each morning prior to the commencement of the construction activities. • Intentional killing of any faunal species (in particular invertebrates and snakes) should be avoided by means of awareness programmes presented to the labour force during construction. The labour force should be made aware of the conservation issues pertaining to the taxa occurring on the study site. Any person found deliberately harassing any animal in any way should face disciplinary measures, following the possible dismissal from the site. • It is recommended that the overflow is directed into an existing stormwater system or directed towards one of the nearby artificial dams on the estate.
<p>Establishment,</p>	<p>Construction and operation personnel are likely to be</p>	<p>Medium</p>	<p>Medium</p>	<p>Existing dirt road infrastructure should be utilized during construction and operation.</p>

development and utilization of infrastructure	<p>afraid of fauna species and may persecute them or kill them. If these individuals are not afraid of them they may hunt them for food or sport. Construction and operational activities such as noise and lighting may disturb fauna species.</p>			<p>Construction and operational crews should be informed of fauna species which may occur on site and be provided with a protocol to deal with such occurrences.</p> <p>Construction personnel should be informed of the Animal Protection Act no. 71 of 1962 and encouraged not to harm any wildlife;</p> <p>Any development approved must acknowledge fauna species and allow them the opportunity to migrate, i.e. if an animal is encountered, the construction should cease until the animals move of their own accord or if necessary are captured and relocated.</p> <p>Construction and operation activities should be restricted to daylight hours to prevent any additional disturbance to fauna such as floodlights or construction/ operational noises.</p> <p>If blasting is required, this should be restricted to daylight hours not beginning before one hour after sunrise and ending one hour before sunset as these are the times when fauna assemblages are most mobile.</p>
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> • Possible relocation of fauna that may occur on site to a quieter area. • Pregnant animals aborting due to uncontrolled noise 	Low	Low	<ul style="list-style-type: none"> • Same as detailed above
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> • Loss of fauna species in the broader study area 	Low	Low	<ul style="list-style-type: none"> • Same as detailed above
Ecological Impacts (Flora)				
It is evident that the proposed pipeline alignment corresponds to an area that is rich in flora and fauna species. However, a large section of the proposed alignment				

corresponds to transformed/rehabilitated habitat or are located alongside existing infrastructure (most of the pipeline corresponding to the secondary grassland is located next to a dirt road). Therefore, a large part of the alignment is already subjected to anthropogenic perturbation regimes and edge effects (as evidenced by the number of ruderal weed species), thereby rendering the majority of impacts either of moderate or low significance.

Activity	Impact Summary	Significance		Proposed Mitigation
		S1	S2	
	Layout Alternative			
Construction of the pipeline	<p>Direct impacts: Impacts of higher magnitude is expected to prevail on untransformed grassland where floristic richness was high, especially if construction activities intercede with areas containing andesite outcrops and bush clumps. The only feasible manner to minimize impacts corresponding to the untransformed grassland units is to concentrate earthmoving equipment and machinery on areas of low ecological sensitivity and align the pipeline with the existing drainage trench.</p>	Medium	Medium	Same as detailed above
	<p>Indirect impacts: Loss of untransformed and secondary habitat.</p>	Medium	Medium	Same as detailed above
	<p>Cumulative impacts: Cumulative impacts are foreseeable without the implementation of the aforementioned mitigation measures. These include inappropriate grazing regimes of the rehabilitated corridor by game species, thereby disrupting the rehabilitation process.</p>	<ul style="list-style-type: none"> • N/A 		

Visual Impacts				
The significance of the visual impact of the proposed development would be low significance. The proposed pipeline would transverse over a pristine environment however since the pipeline will be underground, the overall visual impact will be minimal.				
Activity	Impact Summary	Significance		Proposed Mitigation
		Layout Alternative	S1	
Impact of the construction phase on the following visual receptors: Grassland vegetation (untransformed) in the vicinity of the proposed development.	<p>Direct impacts:</p> <ul style="list-style-type: none"> • Impact of initial site works, construction camp, site set up, setting out, laying services, ground works. • Impact of the pipeline construction works to completion. • Construction rubble left onsite may attract vermin, encourage the growth of opportunistic alien vegetation and become unsightly. • Littering on site may attract vermin, pollute the surrounding areas and become unsightly. 	Low	Low	<ul style="list-style-type: none"> • Establish screening structures to shield construction works from sensitive receptors (where required); good traffic and site management and keeping local people informed. • Good traffic and site management • Keeping local people informed. • Littering will not be permitted on the site and general housekeeping will be enforced. • General waste bins must be readily available for litter disposal and general housekeeping. The EMPr must be followed during construction. • All solid waste generated during the construction process must be placed in a designated waste collection area within the construction camp and must not be allowed to blow around the site, be accessible to animals, or be placed in piles adjacent the waste skips / bins. • All solid waste must then be disposed of at the nearest licensed landfill and safe disposal certificates obtained. • Separate waste skips/ bins for the different waste streams must be available on site. • The waste containers must be appropriate to the waste type contained therein and where necessary should be lined and covered. This will be managed through the site specific EMPr and monitored by the ECO. • No waste (hazardous or general) will be disposed of in the trenches around the storm water channel footprint.

				<ul style="list-style-type: none"> All excess material and rubble must be removed from the site so not to restrict the rehabilitation process. Adequate toilet facilities must be provided for all staff members as standard construction practice. Monitor the sewerage facilities for spillages, and handle any spillages as hazardous waste; The chemical toilets to be provided must be from a registered company and all sewage must be disposed of at an appropriate facility. Safe disposal certificates must be kept on record. All hazardous material must be carefully stored and then disposed of offsite at the licensed hazardous landfill site
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> Hauling and delivery of construction materials regularly on local roads during contract period 	Low	Low	<ul style="list-style-type: none"> Operate site within construction industry management guidelines, time limit on contract period.
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 		
Heritage Impacts				
<p>A number of stone walled structures dating to the Late Iron Age. Based on the complexity of their design, a central cattle enclosure and the outer wall consisting of some irregular scallops for houses along with the typical small stock enclosures adjacent to it. It can probably be linked to the Bafokeng, a division of the Sotho-Tswana. These settlements might link up with the other similar settlement sites in the larger region. Additionally, due to most of the features occurring underground e.g. graves, they maybe accidentally exhumed during excavation which is unlikely as such features would already have been exhumed if they existed by agriculture machinery. Therefore the likelihood of such features occurring is improbable. Nonetheless, should graves, fossils or any archaeological artefacts be identified during construction, work on the area where the artefacts were found, must cease immediately and it should immediately be reported to a heritage practitioner or local museum so that an investigation and evaluation of the finds can be made.</p>				
Activity	Impact Summary	Significance		Proposed Mitigation
	Layout Alternative	S1	S2	
Construction of the pipeline in close proximity	<p>Direct impacts:</p> <ul style="list-style-type: none"> Implying alteration or destruction of heritage features within the project boundaries; 	Medium	Medium	<ul style="list-style-type: none"> The contractors and workers should be notified that archaeological sites might be exposed during the construction work.

<p>to a number of stone walled sites dating to the Late Iron Age</p>				<ul style="list-style-type: none"> • Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible; • No artifacts may be removed off site unless authorized by the appropriate authority. Work on the area where the artifacts were found should cease immediately and the Engineer and the EMS representative be notified as soon as possible. Upon receipt of such notification, the PM or EMS representative will arrange for the excavation to be examined by an Archaeologist as soon as possible. • The relevant authority shall be informed to ensure that appropriate management • Action is taken immediately in collaboration with the specialist. • Under no circumstances shall archaeological artifacts be removed, destroyed or interfered with by the Contractor, his employees, his sub-contractors or his sub - contractors' employees. Any person who causes intentional damage to archaeological or historical sites and artifacts could be penalised or legally prosecuted in terms on the Act.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> • Restriction of access or visual intrusion concerning the broader environment 	<ul style="list-style-type: none"> • None 		
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> • Urban sprawl will continue to exert an impact on this type of sites in the region. It is difficult to speculate on how many such sites have already been compromised and it is therefore difficult to give a value judgement on cumulative impacts. It is 	<ul style="list-style-type: none"> • None 		

	highly recommended that a project is launched to review all remaining sites and that, based on that, no-go areas are red flagged in order to prevent unnecessary damaged to the remaining sites.	
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Traffic Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
		S1	S2	
	Layout Alternative			
Increased traffic congestion could possibly occur as a result of construction vehicles moving onto and off the site during construction	Direct impacts: Traffic congestion at the access points and connecting into the existing stormwater drain	Low	Low	<ul style="list-style-type: none"> Construction activities must be limited to normal working hours and according to municipal bylaws Traffic marshals/officers must be appointed to assist with smooth movement of motorists where the proposed pipeline will link to the storm water infrastructure Suitable warning and information signage should be erected before construction commences.
	Indirect impacts: Hauling and delivery of construction materials regularly on local roads during contract period	Low	Low	
	Cumulative impacts: <ul style="list-style-type: none"> None 	<ul style="list-style-type: none"> None 		<ul style="list-style-type: none"> Operate site within construction industry management guidelines, time limit on contract period.

Noise Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
		S1	S2	
	Layout Alternative			
Construction activities such as	Direct impacts:	Low	Low	<ul style="list-style-type: none"> Construction activities must be limited to normal working

presence of vehicles on site and movement of machinery	Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents (± 1 km from the site) as well as along internal access roads.			hours and according to municipal bylaws., <ul style="list-style-type: none"> • The contractor must ensure that noise levels remain within acceptable limits. • If blasting should be required, the nearest sensitive receptors should be informed of the activity three days prior to activity. • Complaints register will be maintained, in which any complaints from the community will be logged. Complaints will be investigated and, if appropriate, acted upon. • The operational layout shall be designed so as to control noise at source by the selection and positioning of temporary and permanent plant. Appropriate directional and intensity settings should be maintained on hooters and sirens. • Silencer units on plant and vehicles shall be maintained in good working order where feasible for use. • Where required, the Contractor shall provide noise attenuation measures in the form of cladding and earth beams between sources of on-site noise and neighbours
	Indirect Impact	Low	Low	<ul style="list-style-type: none"> • Operate site within construction industry guidelines, time frames on contract period
	Cumulative impacts:	<ul style="list-style-type: none"> • None 		

1.3 OPERATION PHASE

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Operation Phase** of the proposed pipeline **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

OPERATION				
Ecological Impacts				
Activity	Impact Summary	Significance		Proposed Mitigation
		Layout Alternative	S1	
Maintenance of the pipeline and possible increased erosion	Direct impacts: <ul style="list-style-type: none"> Localised increase in runoff and accelerated erosion due to initial vegetation clearance 	Very Low	Very Low	<ul style="list-style-type: none"> An maintenance plan must be drafted and adhered to by the responsible person who will own and manage the road, this plan must include: <ol style="list-style-type: none"> Measures to contain and mitigate the release of harmful substances Measures to limit the establishment and spread of alien invasive species
	Indirect impacts: None	None		
	Cumulative impacts: <ul style="list-style-type: none"> Possible increase in and spread of alien invasive species beyond the site if no mitigation is implemented 	<ul style="list-style-type: none"> Avoidance of cumulative impacts through site specific mitigation 		
Socio-Economic Impact				
Activity	Impact Summary	Significance		Proposed Mitigation
		Layout Alternative	S1	
Operation of the access road	Direct impacts:	Low	Low	<ul style="list-style-type: none"> If the road is constructed it will have to be fenced off according

	<ul style="list-style-type: none"> • Stock theft in the area has become uncontrollable during the past years. The new road may provide a quick and easy access and escape route to and from neighbouring farms for perpetrators. 		<p>to agreements between the land owners and Rand Water.</p> <p>It is worth noting that, the landowners have provided RW with access across their land during times of flooding, a dirt road currently exists (same alignment as the proposed tar road). RWs proposal is to formalise this road (tar). The road will be a public road. It is not likely that a new road would result in an increased security risk as the property on which the road will traverse is already bordered by provincial roads.</p>
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1.4 DECOMMISSIONING AND CLOSURE PHASES

A summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the **Decommissioning and Closure Phases** of the proposed pipeline **Preferred Site Layout (S1) and Alternative Site Layout (S2)**

Activity	Impact Summary	Significance	Proposed Mitigation
DECOMMISSIONING AND CLOSURE PHASES			
<p>Decommissioning and closure phases - The decommissioning phase would entail the dismantling of the pipeline and the transportation of rubble from the site. It is anticipated that the pipeline will be dismantled and removed and a rehabilitation plan (removal of all foreign material from site and provision of recycling plans) approved by the relevant authorities will be implemented.</p> <p>Decommissioning and closure phase has not been considered as part of this application as the end use of the site and required decommissioning activities are not known at this time. In addition, the current environmental baseline conditions may change overtime; it is therefore not possible to predict the potential environmental impacts. In addition, it is unlikely that decommissioning will be contemplated due to the nature of the development. However the closure and decommissioning require a separate EIA process. If decommissioning phase is considered in future, the developer will undertake the required actions as prescribed by the legislation at the time and comply with all relevant requirements administered by any relevant authority and competent authority at that time.</p>			

2. NO GO ALTERNATIVE

NO-GO OPTION			
Construction, operation and decommissioning phase of the access road	<p>Direct impacts:</p> <ul style="list-style-type: none"> • Ecological impacts: the no-go option would result in no ecological impact occurring. • Visual impacts: The visual character of the area would remain unchanged. • Heritage impacts: The do-nothing alternative would have no impact on the heritage environment as no development would be undertaken which could potentially impact upon heritage resources. 	Medium (-)	<ul style="list-style-type: none"> • The no-go option would result in a negative social cost due to the loss of construction phase employment opportunities and operational phase jobs. This could be mitigated by implementing the proposed project. • The no go option would result in disruptions to access to critical Rand Water sites which may lead to water service delivery interruptions.
	<p>Indirect impacts:</p> <ul style="list-style-type: none"> • The No-Development option would represent a 	Low	<ul style="list-style-type: none"> • Implementation of the proposed project

	<p>lost opportunity for Rand Water to supplement the existing access route via the Bridge which gets flooded and inaccessible during storm weather conditions. Given Rand Waters responsibility as a water quality provider in the country, this would represent a high negative social cost.</p>		
	<p>Cumulative impacts:</p> <ul style="list-style-type: none"> • Contributing to further unemployment and unsustainable ways to produce quality water during the rainy season 	<p>Low</p>	<ul style="list-style-type: none"> • Implementation of the proposed project

A complete impact assessment in terms of Regulation 19(3) of GN 983 must be included as **Appendix F**.

3. 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.

Comparison of Alternatives: Alternative Layout 1 (S1) Preferred) and Alternative Layout 2 (S2)

This section provides a summary of the environmental assessment and conclusions drawn for the proposed Meyersdal Overflow Pipeline to be constructed in Ekurhuleni Municipality, Gauteng Province. In doing so, it draws on the information gathered as part of the Basic Assessment process and the knowledge gained by the environmental consultant during the course of the process and presents an informed opinion of the environmental impacts associated with the proposed project.

The following conclusions can be drawn from the specialist studies undertaken within this Basic Assessment:

Element/Factor	Observation/Comments
Flora impact	<p>The study site exhibits three broad-scale habitat types, which range from untransformed grassland to transformed/rehabilitated mountain bushveld dominated by alien secondary plant taxa. In summary, based upon the findings of the assessment:</p> <ul style="list-style-type: none"> • The largest percentage of pipeline surface area consists of transformed/rehabilitated mountain bushveld and areas containing anthropogenic infrastructure (51.15 %). • Approximately 27.92% of the pipeline surface area consists of secondary grassland. The floristic composition of the secondary grassland is dominated by secondary vascular plant species and ruderal weed species. • Approximately 20.93% of the pipeline surface area consists of untransformed grassland. The forb richness and diversity of vascular plant taxa on the untransformed grassland was high. <p>It is recommended that the pipeline route be aligned with habitat that is either transformed/rehabilitated, or it should correspond to areas where disturbances and ecological edge effects are prominent (e.g. by placing the pipeline alongside exiting infrastructure such a road reserves or existing artificial drainage trenches). Both Alternative 1 and Alternative 2 follow the same route alignment.</p>
Fauna and habitat Impact	<p>During construction activities, the potential loss of untransformed habitat may result in the loss of protected plant species and the subsequent displacement of fauna. It is evident that most of the large-bodied fauna species will vacate the construction area and take refuge at nearby similar habitat. However, small-bodied and less mobile fauna could become trapped in excavations and trenches.</p> <p>It is recommended that the pipeline route be aligned with habitat that is either transformed/rehabilitated, or it should correspond to areas where</p>

	disturbances and ecological edge effects are prominent (e.g. by placing the pipeline alongside exiting infrastructure such as road reserves or existing artificial drainage trenches). Both Alternative 1 and Alternative 2 follow the same route alignment.
Heritage and Cultural Impact	<p>A number of stone walled structures dating to the Late Iron Age. Based on the complexity of their design, a central cattle enclosure and the outer wall consisting of some irregular scallops for houses along with the typical small stock enclosures adjacent to it. It can probably be linked to the Bafokeng, a division of the Sotho-Tswana. These settlements might link up with the other similar settlement sites in the larger region.</p> <p>Although the footprint of the reservoirs is not going to increase, the integrity of the sites has already been impacted on by the construction of the reservoirs. It is therefore proposed that a watching brief must be agreed upon to monitor the significant areas, i.e. close to the reservoir boundary fence, during construction of the pipeline. A watching brief monitoring process is recommended whereby a heritage specialist inspects the construction site on regular basis in order to monitor possible impacts on heritage resources. Should any subsurface paleontological, archaeological or historical material or heritage resources be exposed during construction activities, all activities should be suspended, and the archaeological specialist should review the exposed features and material and make suitable recommendations for the way forward.</p>
Possible degradation and long-term effects on the environment.	No long term effect on the environment is expected. Mitigation measures should be employed to ensure no significant degradation of the environment.
Pollution released into the environment	The proposed activity is not expected to result in long term pollution of the environment. Mitigation measures are proposed to ensure pollution is restricted to short term localised effects.
<p>Cumulative Impacts:</p> <p>Based on the findings of the studies undertaken, in terms of environmental constraints and opportunities identified through the Environmental Basic Assessment process, no environmental fatal flaws were identified to be associated with the establishment of the proposed Meyersdal Overflow Pipeline and associated infrastructure. The significance levels of the majority of identified negative impacts can generally be reduced to acceptable levels by implementing the recommended mitigation measures. With reference to the information available at this planning approval stage in the project cycle, the confidence in the environmental assessment undertaken is regarded as acceptable.</p>	
<p>For detailed assessment of each layout alternative and impacts in terms of duration of impacts, likelihood of potential impacts actually occurring and the significance of impacts, please refer to Appendix F attached within this Basic Assessment Report.</p>	

Table 1: Summary of specialist findings for each of the respective Layout Alternatives (✓ depicting suitability of the site for the access road development)

Specialists	Layout Alternative 1 (S1)	Layout Alternative 2 (S2)	Preference of Alternatives	
			Preferred	Least Preferred
Flora and Fauna impact	✓	✓	Equally suitable	
Heritage	✓	✓	Equally suitable	

The Layout Alternative 1 (S1) is the preferred alternative layout and recommended by all specialist studies that were conducted for the project. Nonetheless Layout Alternative 2 is equally preferred but for the exception that the Alternative Layout (S2) is not preferred as the open channel presents flooding issues. The alternative layout dissipates the overflow water into open veld which can cause further safety and property damage. **Alternative Layout S2 is therefore not preferred in this regard.** Nonetheless, no fatal flaws or impacts of high significance were identified for both alternatives as they have the least impact on the environment.

Therefore, it is recommended that the project should be authorised. A number of issues requiring mitigation have been highlighted in the impact assessment (Appendix F). In response to these potential environmental impacts, environmental specifications for the management of these issues / impacts are detailed within the Environmental Management Programme (EMPr) included within **Appendix G**.

Alternative B

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Alternative C

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No-go alternative (compulsory)

Also referred to as the 'Do nothing' option, this refers to Rand Water not constructing the proposed pipeline on the identified site. In this scenario the potential positive and negative environmental and social impacts as described in this Basic Assessment Report will not occur and the status quo will be maintained.

- At the current stage the overflowing water from the reservoir does present a safety concern for residences within the area. As such the main focus of the pipeline is to safely attenuate water away from the affected properties towards the existing storm water channel. The No-Development option would represent a lost opportunity for Rand Water to deliver the required quantity of clean water safely. This would represent a high negative social cost.
- Rand Water is a South African water utility that supplies potable quality water to the Gauteng province and other areas of the country and is the largest water utility in Africa. Should the facility not be constructed, this will limit the Rand Water's potential to provide the needed quality water in the area and cumulatively in the broader region.
- Rand Water will be failing to carry out their legislative mandate towards the realisation of provision of aforementioned services mainly in the rainy season.

The no-development option also represents a lost opportunity in terms of the employment and business opportunities (construction phase) associated with the proposed pipeline. On a local level, should the complete development proceed, the landowners will benefit from the proposed development in that residences would be

safely secured in terms of floods damaging property. The no-development option will therefore not be beneficial to the landowner or the broader community nor the general public.

The 'Do nothing' alternative is, therefore, not a preferred alternative

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 ✓

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).

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.

There are no environmental or social impacts of substantive significance that would prevent the establishment of the proposed Meyersdal Overflow Pipeline on a site in Ekurhuleni Metropolitan Municipality, Gauteng Province, provided that the pipeline is developed within the recommended alternative.

From an environmental perspective **Alternative 1** is the preferred option as the pipeline connects directly into the existing stormwater drainage line and eliminates the issue of flooding as opposed to the open channel proposed in **Alternative 2**. Furthermore, Alternative 1 follows the route of an existing access route and drainage line reducing vegetation clearance to minimum.

The construction of the proposed pipeline should be implemented according to the EMPr to adequately mitigate and manage potential impacts associated with construction activities. The construction activities and relevant rehabilitation of disturbed areas should be monitored against the approved EMPr, the Environmental Authorisation and all other relevant environmental legislation. Relevant conditions to be adhered to include:

Construction

- All relevant practical and reasonable mitigation measures detailed within this report and EMPr must be implemented.
- The implementation of the EMPr for all the project life cycle phases of the proposed project is considered key in achieving the appropriate environmental management standards as detailed above.
- The content of the EMPr and its objectives must be made known to all Contractors and their subcontractors, agents and other people working on site.
- A storm water drainage system and a storm water management plan must be developed and implemented on site.
- An independent Environmental Control Officer (ECO) should be appointed to monitor compliance with the specifications of the EMPr and environmental conditions once issued by DEA for the duration of the construction period.
- Monthly monitoring reports must be submitted to DEA for the evaluation of the projects compliance to the EMPr and Environmental authorisation.
- All declared alien plants must be identified and managed in accordance with the Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1994), and the implementation of a monitoring programme in this regard is recommended.
- Existing tracks/roads should be used as far as possible, and construction activities should be limited to the authorised site.
- Disturbed areas should be rehabilitated as soon as possible once construction is complete in an

<p>area.</p> <ul style="list-style-type: none">• Rand Water shall ensure that adequate protection measures are taken to minimize the potential risk of theft during the construction and operational phase.• The developer must obtain all necessary permits prior to the commencement of construction.• A public complaints register must be available on site to record any issues of concern from the public regarding the project.• Implementation of the environmental awareness education to the contractor's during and prior to construction.• Continued consultation and engagement with all relevant stakeholders – especially property owners, neighbouring and local communities, and respective municipalities during labour recruitment and procurement for services and supplies during construction phase.• Compliance with all legal requirements in relation to environmental management and conditions of the environmental authorisation issued by DEA.• On-going monitoring of the development sites to detect and restrict the spread of alien plant species. <p>Operation</p> <p>The mitigation and management measures previously listed in this Basic Assessment Report should be implemented in order to minimise potential environmental impacts. The following mitigation measures should also be implemented.</p> <ul style="list-style-type: none">• Maintenance of stormwater drainage.

Is an EMPr attached?

YES ✓

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**.

NAME OF EAP

SIGNATURE OF EAP

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Site plan(s)

- A1: Locality Map
- A2: Layout Plan
- A3: Sensitivity Maps
- A4: Route Corridor Coordinates

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

- D1: Wetland Specialist Report
- D2: Fauna Specialist Report
- D3; Flora Specialist Report
- D4: Soil and Agriculture Specialist Report
- D5: Heritage Specialist Report
- D6: Traffic Specialist Report
- D7: Geotechnical Report

Appendix E: Public participation information

- Appendix E1: Adverts and Site Notices
- Appendix E2: Proof of key stakeholder consultation
- Appendix E3 (a): Comments Received
- Appendix E3 (b): Comments and Response Report
- Appendix E4: Proof of Authorities and Organs of State consultation
- Appendix E5: Registered Interested and Affected Parties
- Appendix E6: Minutes of Meetings

Appendix F: Impact and Assessment Report

Appendix G: Environmental Management Programme (EMPr)

Appendix G1: Rehabilitation and Monitoring Plan

Appendix G2: Stormwater Management Plan

Appendix H: Details of EAP and Expertise

Appendix I: Specialist Declaration of Interest

Appendix J: Additional Information