environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

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File Reference Number:	
Application Number:	
Date Received:	

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2010 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **1 September 2012**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
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 on the electronic copy of the report submitted to the competent authority.

SECTION A: ACTIVITY INFORMATION

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

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. PROJECT DESCRIPTION

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

The state-owned Umgeni Water (UW) was established in 1974 to provide bulk potable water to various municipalities. Umgeni Water is situated in the KwaZulu-Natal Province and serves uMgungundlovu, Ugu, Sisonke and Ilembe District Municipalities, Msunduzi Local Municipality and eThekwini Metro. Umgeni Water owns and/or manages major infrastructure in its operational area (storage and recreational dams, water treatment works, wastewater treatment works, tunnels and pipelines). Umgeni Water sources water from twelve impoundments on three major water resource systems namely, the **Mgeni System** (Mooi and Mgeni rivers), the North Coast System (Mdloti River) and the South Coast System (Nungwane, Mzimayi and Mzinto rivers). The Mgeni System comprises four dams on the Mgeni River, namely, **Midmar Dam**, Albert Falls Dam, Nagle Dam and Inanda Dam.

The KwaZulu-Natal Bulk Water Supply Plan (1984) was developed to partner Water Service Authorities with Water Utilities in KwaZulu-Natal in order to provide a regional base and a sustainable solution for the provision of potable water. Regional bulk water supply schemes have been proven to provide economies of scale and improve water quality and service provision.

The Mooi-Mgeni Raw Water Transfer Scheme (MMTS) comprises the new Mearns Weir on the Mooi River, the raising of Midmar Dam, the provision of a standby pump for the existing Mearn's Pumping Station, the registration of a servitude of aqueduct along sections of the Mpofana, Lions and Mgeni Rivers, Spring Grove Dam (full supply capacity of 141.6 million cubic metres) on the Mooi River, a new pumping station at Spring Grove Dam and a new pipeline to transfer water directly into the Mpofana River, which is within the Mgeni catchment. The overall transfer capacity of the MMTS will ultimately provide raw water at a rate of 4.5 cubic metres per second. Midmar Waterworks (WW) in Howick, KwaZulu-Natal, is an UW owned and managed strategic asset which receives and treats raw water from this system to provide potable water for the greater Durban - Pietermaritzburg Region and is a primary source for the uMgungundlovu District Municipality.

In summary, the development proposal includes the following:

- Second raw water transfer pipeline
- Pumpstation upgrade
  - additional pump set to be installed into existing plinth with associated switch gear and operating rule configuration changes
  - adjustments to the suction manifold to accommodate a new pipe
- Midmar Water Treatment Works upgrade
  - New filter plant
  - Sludge plant centrifuge
  - Outlet works
- Mill Falls Sludge Treatment Plant upgrade

Raw water from Midmar Dam is currently pumped to the Midmar WW via an existing raw water pipeline (1626mm OD/1544mm ID) which is approximately 3 km in length. The existing raw water

pipeline is the only raw water supply from the Dam to the Midmar WW, which has a theoretical capacity to treat 250ML/day. **A second raw water pipeline** to supply the WW is now proposed to mitigate the risk of failure and thus to provide potable water should the existing pipeline fail. In addition, the demand for potable water to the eThekwini Municipal areas (connecting to the Western Aqueduct) necessitates an upgrade of the Midmar WW from 250 ML/day to 393 ML/day.

The Department of Water Affairs has already modified the outlet works and pipework at Midmar Dam to accommodate a second outlet pipeline and cross-connections at the dam wall. Umgeni Water now proposes to provide a second raw water transfer pipeline between the outlet at the Dam wall to the WW, via the raw water pumpstation. The two pipelines should be used conjunctively at a maximum flow of 1.1 m/s (393 ML/day). The second raw water transfer pipeline is proposed to be constructed along the most direct route between the pump house and the WW and is 1.6km long. The proposed route affected areas have been mostly used for services like pipelines, power lines and roads. The proposed pipeline route crosses the R103 Main Road between Howick and Lions River. A Way-leave to construct a pipe jack culvert for the pipe will be required from the KZN Department of Transport (KZN-DOT). Similarly, a Way-leave for a new pipe jack culvert required to cross the N3 National Road will be required from the South African National Roads Agency (SANRAL).

Vegetation and Freshwater Ecosystems Specialist Studies have been undertaken to assess the impact of the proposed pipeline on the ecology. The Vegetation Assessment found that the areas affected by the proposed pipeline route were degraded and overgrazed by cattle. Over half of the species observed were exotic, and a number of those species have been declared as prohibited. The Freshwater Ecosystems Study found two habitat patches of temporary and seasonally inundated wetland within the development footprint of the pipeline route, between Midmar Dam wall and the Pumphouse, and on either side of the R103 Main Road. Thus, approximately 170m of the 1.6km long proposed pipeline (approximately 300m² in area) will impact on wetland habitat (10%). The wetland areas have been disturbed in the past by pipeline developments. A Biodiversity Rehabilitation Plan has been developed to restore the natural environment along the proposed pipeline route post-construction, and is contained in Appendix H.

The raw water pumpstation currently comprises of three sets of pumps (two duty pumps and one standby). To ensure a combined delivery of the proposed 393 ML/day, a fourth pump set is required. There is an existing plinth to accommodate the new pump set however, changes to the switch gear and operating rule configurations will be required to be undertaken prior to the operation thereof.

The upgrade to the **Midmar WW** would comprise the design, installation and commissioning of a new filter plant, sludge plant centrifuge and outlet works. With the upgrade, the chlorine consumption required to treat the raw water will increase by 14.4m³.

The increase in the generation of Water Treatment Residue (WTR), which is essentially sludge in composition, will require the upgrading of the **Mill Falls Sludge Treatment Plant**. The Water Treatment Plant at Midmar can be upgraded to 393 ML/day without the need for major civil construction. This is because the clarifiers were upgraded during 2003.

New infrastructure for the pumpstation, Midmar WW and Mill Fall Sludge Treatment Plant, will be the expansion of existing infrastructure and thus be accommodated within the existing footprints.

Bulk water agreements between Umgeni Water and the Msunduzi Local Municipality, uMgungundlovu District Municipality and the eThekwini Municipality exist. Umgeni Water will own, operate and maintain the upgraded Midmar Water Treatment Plant and sell the potable water to the Municipalities

listed above.

The proposed development will occur between two Nature Reserves. Midmar Nature Reserve directly bordering the development on the west, and Umgeni Nature Reserve, 2kms to the east. The Mgeni River flows from the Midmar Dam wall approximately 300 metres to the north west of the pumpstation meandering east, then south for approximately 3.5 km passing the Mill Fall Sludge Treatment Plant at a distance of approximately 60 metres.

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

Listed activity as described in GN R.544, 545 and 546	Description of project activity
GNR 544 Part 9: ''The construction of facilities or infrastructure exceeding 1000 metres in length for the bulk transportation of water, sewage or storm water – (i) with an internal diameter of 0.36 metres or more; or (ii) with a peak throughput of 120 litres per second or more, Excluding where: a. Such development or infrastructure are for bulk transportation of water, sewage or storm water or storm water drainage inside a road reserve; or b. Where such construction will occur within urban areas but further than 32 metres from a watercourse, measured from the edge of the watercourse.''	***The proposal is to construct a raw water transfer pipeline 1600 metres in length with a flow rate of 455 litres per second, will trigger this Listed Activity.***
GNR 544, Part 11: The construction of:… ii) channels; …v) weirs;… xi) infrastructure or structures covering 50 square metres or more… where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse…	***The proposal to construct the raw water delivery pipeline will be from the Midmar dam wall outlet works which is within 32 metres of the Mgeni River which flows from the Dam wall.***
GNR 544, Part 18: The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand … from i) a watercourse…	***The proposal to construct the raw water delivery pipeline will be from the Midmar dam wall outlet works, which is within the Mgeni River watercourse, and through a wetland area. This will trigger the listed activity.***
GNR 544 Part 28''The expansion of or changes to existing facilities for any purpose or activity where the expansion or changes to will require the need for a permit or license in terms of national or provincial legislation governing the release of emissions or pollution, excluding where the facility, process or activity is included in the list of	***An existing Water-Use permit is in place. This will be re-applied for in line with the upgrade.***

waste management activities published in terms of the NEMA Waste Act, 2008 (Act No. 59 of 2008) in which case that Act will apply.	
GNR 544 Part 37: ''The expansion of facilities or infrastructure for the bulk transportation of water, sewage or stormwater where: (a)The facility or infrastructure is expanded by more than 1000 metres in length; or (b)Where the throughput capacity of the facility or infrastructure will be increased by 10% or more –	***The proposal is to construct a raw water transfer pipeline 1600 metres in length and the upgrade to the Midmar WW from 250 ML/day to 393 ML/day which constitutes an increase of 36%, thus this activity is triggered.***
GNR 546 Part 13: ''The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation…… ii. Outside urban areas, the following: (ff) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of MEMPA or from the core area of a biosphere reserve.	***The pipeline will require a clearance of an area which totals in excess of 1 hectare of vegetation where 75% or more constitutes indigenous vegetation within 5km of both the Midmar and Umgeni Nature reserves.***
GNR 546 Part 16: ''The construction of: (iii) buildings with a footprint exceeding 10 square metres in size; or (iv) infrastructure covering 10 square metres or more where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. ii. Outside urban areas, in: (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;	***The proposal to construct the raw water delivery pipeline will be from the Midmar dam wall outlet works which is within 32 metres of the Mgeni River which flows from the Dam wall. The proposed development occurs within 5km of both the Midmar and Umgeni Nature Reserves.***

Demonstration that listing GNR 546 Part 23 is not applicable: ''The expansion of facilities or infrastructure for the storage, or storage and handling of dangerous good, where such storage facilities will be expanded by 30 cubic metres or more but less than 80 cubic metres ***ii. Outside urban areas, in:*** ***(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve;*** ***(ii) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined.***	***Chlorine is currently used as part of the water treatment process.*** ***Pre, intermediate and post chlorine doses combined are equal to 5mg/litre (5kg/Mega litre). Current raw water intake is 250 ML /day. Thus chlorine consumption will be 5kg/ML x 250 ML/day = 1250 kg/day. Thirty days of chlorine are stored on site. Thus 1250 x 30 days = 37 500 kg chlorine currently stored on site. The density of chlorine is 1562.5 kg/m³. Thus 37 500kg/1562.5 = 24m³ currently stored on site (37 containers).*** ***With the upgrade, there will be a maximum of 400ML of raw water intake per day. Chlorine consumption will therefore increase as 5kg/ML x 400 ML/day = 2000 kg/day chlorine. Thirty days supply is 2000 x 30 = 60 000kg chlorine proposed to be stored on site. The density of chlorine is 1562.5 kg/m³. Thus 60 000kg/1562.5 = 38.4m³ is proposed to be stored on site (an additional 12 containers).*** ***The difference between current operation and future operation storage requirements will be for an additional 14.4m³ of chlorine. Although the proposed development occurs within 5km of both the Midmar and Umgeni Nature Reserves, chlorine storage increase is below 30m³. Thus no listings pertaining to the storage of dangerous goods will be triggered.***

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
1a.Second Pipeline dam outlet works	29º 29'42.86"	30º12'07.49"
1b.Second Pipeline R103 crossing point	29º 29'37.95"	30º12'17.03"
1c.Second Pipeline N3 crossing point	29º 29'40.20"	30º12'29.56"
1d.Second Pipeline Rail crossing point	29º 29'52.32"	30º12'51.14"
1e.Second Pipeline inlet structure WW	29º 29'57.73"	30º12'01.08"
2.Pumpstation	29º 29'35.13"	30º12'18.13"
3.Midmar WW (centre point)	29º 29'56.11"	30º12'03.75"
4.Mill Falls Sludge Treatment Plant (centre point)	29º 29'52.51"	30º12'12.79"
The development proposal comprises a second raw water pipeline construction and upgrades to the Pumpstation, Midmar Water Treatment Works and Mills Fall Sludge Treatment Plant. No other alternative locations have been investigated, as the new infrastructure for the Pumpstation, Midmar WW and Mill Fall Sludge Treatment Plant will be accommodated within the existing footprints. Alternatives have been investigated for the new (second) raw water transfer pipeline route proposed to be established between the outlet at the Dam wall to the suction manifold of the raw water pump station and from the delivery manifold of the pump station to the inlet structure of the WW. The two pipelines are proposed to be used conjunctively at a maximum flow of 1.1 m/s (393 ML/day). The second pipeline will result in operational cost savings associated with reduced pumping energy costs from improved hydraulic functioning. The new pipeline is proposed to be a duplicate 1 600mm nominal bore steel, cement-lined pipeline with strengthening gussets on all bends and tees.		

The following road crossings are unavoidable for any feasible route: • R103 Main Road between Howick and Lions River – a new pipe jack culvert will be required to be constructed under the tarred road to accommodate the new pipe. • N3 National Road. • Petronet oil pipe **<u>Route A (preferred pipeline route)</u>:** This Option takes a more direct route between the pumpstation and the Midmar WW and is thus only 1.6km long and passes through fewer land ownerships. Although it does cross through wetland areas, it does not follow the route of the Mgeni River within the riparian corridor as with Route B. The proposed route runs southwards from the pumpstation more or less directly to the location of the Midmar WW. There is a single variation on Route B, as follows: Refer to Facility Illustration 2 in Appendix C for a map showing the alternative pipeline routes.		
Alternative 2		
Route B: This Option proposes to run adjacent to the existing '251' pipeline route which is 3.3km long and follows the route of the Mgeni River within an existing pipeline servitude. The existing pipeline consists of two sections. The first section from the dam outlet works to the pump station is 550m long. The pipeline then heads north-east, adjacent to the Mgeni River, meandering east, then south. At the Mill Fall Sludge Treatment Plant, the pipeline turns west to eventually reach the inlet structure the Midmar WW. This route crosses the Petronet oil pipeline servitude twice. Almost the entire length of the proposed route will be situated within the riparian corridor of the Mgeni River. Refer to Facility Illustration 2 in Appendix C for a map showing the alternative pipeline routes	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:
Proposed Raw Water Transfer Pipeline

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Route A Pipeline dam outlet works	29° 29'42.86"	30°12'07.49"
• Route A Pipeline N3 crossing point	29° 29'40.20"	30°12'29.56"
• Route A Pipeline inlet structure WW	29° 29'57.73"	30°12'01.08"
Alternative S2		
• Route B Pipeline dam outlet works	29° 29'42.86"	30°12'07.49"
• Route B Pipeline N3 crossing point	29° 29'35.75"	30°12'24.72"
• Route B Pipeline inlet structure WW	29° 29'57.73"	30°12'01.08"

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. **Refer to Appendix A.**

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.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
No alternative designs or layouts have been investigated as the upgrades to the Pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will be accommodated within the existing footprints.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)
N/A	N/A	

c) Technology alternatives

Alternative 1 (preferred alternative)
No alternative technologies have been investigated. Umgeni Water will utilise tried and tested technologies that match the current infrastructure that is already in place. For example, the additional pump for the Pumpstation will be identical to the existing three pumps and the proposed second raw water transfer pipeline will be of the same materials used in the existing pipeline.
Alternative 2
N/A
Alternative 3
N/A

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

Alternative 1 (preferred alternative)		
N/A		
Alternative 2		
N/A		
Alternative 3		
N/A		

e) No-go alternative

The no-go alternative, if pursued, will have the following impacts:

- The no-go alternative provides no contingency for the potential failure of the single '251' raw water transfer pipeline that currently feeds into the Midmar WW, which supplies potable water to surrounding regions. The raw water transfer pipeline is thus considered a strategic asset with a very high risk rating because the provision of potable water will be interrupted should

this pipeline fail. Without the proposed second raw water transfer pipeline, this risk will remain high.

- The no-go alternative fails to address current and future demand for water and the issue of water scarcity. Provision of potable water to regional communities including eThekwini cannot be made possible unless there is an upgrade to the Midmar WW.
- The Regional Water Supply Scheme will not be delivered unless this development proposal is implemented. If the no-go option was pursued, then the benefits and purpose of significant capital investment already made on water supply infrastructure (MMTS and Western Aqueduct) which forms a part of the wider regional water supply scheme will never be fully realised to the community.

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:	**Size of the activity:**
1.Second Pipeline inlet structure WW (1600m x 1.6km) preferred Route A	2 560m²
2.Pumpstation	1 250m²
3.Midmar WW (centre point)	333 95m²
4.Mill Falls Sludge Treatment Plant (centre point)	224 00m²
Alternative A2 (if any) Route B	5 280m²

Alternative:	**Length of the activity:**
Alternative A1 preferred Route A	1 600 m
Alternative A2 Route B	3 300 m

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

Alternative:	**Size of the site/servitude:**
Alternative A1 preferred Route A	5 760m²
Alternative A2 Route B	11 880m²

4. SITE ACCESS

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

Describe the type of access road planned:

N/A

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

5. LOCALITY MAP

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

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

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

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

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWA);
- ridges;

- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

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

8. SITE PHOTOGRAPHS

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

9. FACILITY ILLUSTRATION

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

10. ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	[redacted]	Please explain
The upgrades to the pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will occur within the existing footprints of the properties. The second raw water transfer pipeline is proposed to be constructed along the most direct route between the pump house and the WW and is 1.6km long. The proposed route will traverse 129 and 170 of 905 (UW owned), 460 of 905 (Eskom owned) and 506 of 905 (SANRAL owned). The affected areas have been mostly used for services like pipelines, power lines and roads.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	[redacted]	Please explain
Water provision is seen as a critical lever for the KZN Province economic and social development and thus forms an integral part of the PSEDS. National service delivery targets have been adopted for household access to clean water. A 'special intervention' approach is required for the Province of KwaZulu-Natal in order to eliminate the water services backlogs and to provide services within acceptable timeframes. The PSEDS refers to the need to focus on the provision of affordable bulk water and to support growth priority sectors.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
N/A			

(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?).	YES		Please explain
The upgrade of the Midmar WW is categorized as a 'project for which other agencies are the funding source' within the uMngeni Municipality Integrated Development Plan 2012 Project No. B1.1.9. Umgeni Water is identified as the Funding Source. Umgeni Water organisational revenue is primarily derived from the sale of bulk potable water to its six customers: eThekwini Metropolitan Municipality, iLembe District Municipality, Ugu District Municipality, Sisonke District Municipality, uMgungundlovu District Municipality, and Msunduzi Local Municipality.			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
See above.			
(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
The Map 3c within the Environmental Management Framework (Appendix J3) presents the Environmental Management Priority Areas. The area of the proposed development has been shown to be reserved for agricultural development only. The upgrades to the pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will occur within the existing footprints of the properties. The proposed pipeline route of 1.6km will occur more or less adjacent to the N3. The land concerned is currently used predominantly for services such as Eskom pylons, the Petronet oil pipeline and the Spoornet Railway line.			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
N/A			
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)?	YES		Please explain
The upgrade of the Midmar WW is categorized as a 'project for which other agencies are the funding source' within the uMngeni Municipality Integrated Development Plan 2012 Project No. B1.1.9. UW is identified as the Funding Source. UW organisational revenue is primarily derived from the sale of bulk potable water to its six customers: eThekwini Metropolitan Municipality, iLembe District Municipality, Ugu District Municipality, Sisonke District Municipality, uMgungundlovu District Municipality, and Msunduzi Local Municipality.			
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
The scheme will serve the '61 System which supplies potable water to uMngeni, Msunduzi, uMgungundlovu and eThekwini Municipalities. The demand for potable water is high. As at 2011,			

population sizes for the following areas were uMgungundlovu DM 390 357, Msunduzi LM 624 412, eThekwini MM 3 540 682. The Western Aqueduct is a bulk water supply project commissioned by eThekwini Water and Sanitation. The proposed development will accommodate the load transfer of the Western Aqueduct demand.			
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	[redacted]	Please explain
Additional services are not required to enable the development proposal.			
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.)	[redacted]	NO	Please explain
The upgrade of the Midmar WW is categorized as a 'project for which other agencies are the funding source' within the uMngeni Municipality Integrated Development Plan 2012 Project No. B1.1.9. UW is identified as the Funding Source.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	[redacted]	Please explain
The supply of potable water to communities is an issue of national importance and the development forms part of a wider Regional Water Scheme.			
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	[redacted]	Please explain
The upgrades to the pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will occur within the existing footprints of the properties. The proposed pipeline route of 1.6km will occur more or less adjacent to the N3. The land concerned is currently used predominantly for services such as Eskom pylons, the Petronet oil pipeline and the Spoornet Railway line.			
9. Is the development the best practicable environmental option for this land/site?	YES	[redacted]	Please explain
The upgrades to the pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will occur within the existing footprints of the properties. The proposed pipeline route of 1.6km will occur more or less adjacent to the N3. The land concerned is currently used predominantly for services such as Eskom pylons, the Petronet oil pipeline and the Spoornet Railway line.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	[redacted]	Please explain
See above responses.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	[redacted]	NO	Please explain
The upgrades to the pumpstation, Midmar WW and Mill Falls Sludge Treatment Plant will occur within			

the existing footprints of the properties thus there will be no associated impact. The proposed pipeline route of 1.6km will occur more or less adjacent to the N3 starting at the Midmar Dam wall and ending at the Midmar WW. The land concerned is currently used predominantly for services such as Eskom pylons, the Petronet oil pipeline and the Spoornet Railway line. The Vegetation Assessment found that the areas affected by the proposed pipeline route were degraded and overgrazed by cattle. Over half of the species observed were exotic, and a number of those species have been declared as prohibitive. Approximately 300m² of wetland area will be affected by the proposed pipeline construction. This wetland has previously had a pipeline constructed through it. A Biodiversity Rehabilitation Plan has been developed to restore the natural environment along the proposed pipeline route post-construction, and is contained in Appendix H.			
12. Will any person's rights be negatively affected by the proposed activity/ies?		NO	Please explain
See above responses.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?		NO	Please explain
N/A – The properties fall outside the urban edge.			
14. Will the proposed activity/ies contribute to any of the 18 Strategic Integrated Projects (SIPS)?	YES		Please explain
SIP 18: Water and sanitation infrastructure •A 10-year plan to address the estimated backlog of adequate water to supply 1.4 m households and 2.1 m households to basic sanitation. The project will involve provision of sustainable supply of water to meet social needs and support economic growth. •Projects will provide for new infrastructure, rehabilitation and upgrading of existing infrastructure, as well as improve management of water infrastructure.			
15. What will the benefits be to society in general and to the local communities?			Please explain
There are employment opportunities for local communities, both temporary and permanent, from the construction and operational phases. The operational phase of the development will deliver potable water to communities. The demand for potable water is high and the delivery of the project has a high National priority.			
16. Any other need and desirability considerations related to the proposed activity?			Please explain
N/A			
17. How does the project fit into the National Development Plan for 2030?			Please explain
In support of the economy and employment one of the main actions in the NDP is focused on water resources: (28) 'A comprehensive Management Strategy, including an investment programme for water resource development, bulk water supply and wastewater management for major centres by 2012, with reviews every 5 years' and (29) 'Create Regional water and wastewater utilities, and expand mandates of the existing waterboards (between 2012-2017).'			
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.			
As part of the feasibility work undertaken for this proposal, Specialists have been consulted during the design and development of appropriate alternatives. The environmental has been investigated by both Vegetation and Freshwater Ecologists. Mitigation measures have been developed to address the potential environmental impacts identified by the Specialists. Participation of all interested and affected parties has been facilitated (refer to Appendix E).			

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.
Section 2 of NEMA states that 'Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social Interests equitably'. The purpose of the proposed development applies this principle directly through its mission to provide safe, clean water to communities. Where relevant (proposed pipeline preferred route A) the disturbance of ecosystems has been minimised and remediation has been planned to restore biodiversity (Biodiversity Rehabilitation Plan, Appendix J1).

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
Conservation of Agricultural Resources Act Act (43)		Department of Agriculture, Forestry & Fisheries	1983
National Heritage Resources Act (25)		National Heritage Resources Agency	1999
World Heritage Conventions Act (49)		Department of Environmental Affairs	1999
The National Environmental Management: Biodiversity Act (10)		Department of Environmental Affairs	2004
National Environmental Management: Protected Areas Act (57)		Department of Environmental Affairs	2003
The Mountain Catchments Areas Act (63)		Department of Water Affairs	1970
MTPA Biodiversity Conservation Plan		Department of Economic Development & Environmental Affairs / Mpumalanga Tourism and Parks Agency	
National Water Act (Act 36 of 1998)		DWA	1998
KwaZulu-Natal Planning and Development Act (Act No. 5 of 1998).		Municipality	1998
National Building Regulations and Standards Act (Act No. 103 of 1977) (as amended)		Economic Affairs	
IEM Guideline 5: Companion Guideline on the Implementation of the Environmental Impact Assessments Regulations		Department of Environmental Affairs	2010
IEM Guideline 6: Environmental Management Framework Guideline		Department of Environmental Affairs	
IEM Guideline 7: Public Participation Guideline		Department of Environmental Affairs	
The Ramsar Convention			
Convention on Biological Diversity			
United Nations Conventions to Combat Desertification			
New Partnership for Africa's			

Development (NEPAD)			
The World Summit on Sustainable Development (WSSD)			

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

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

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

Waste will be recycled where possible. Waste that cannot be recycled will be disposed of at the nearest registered landfill site.

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

Waste will be collected on site and disposed of at the nearest recycling depot. If it emerges that any part of this waste cannot be recycled, it must be disposed of at the nearest permitted landfill site.

Will the activity produce solid waste during its operational phase?	YES
If YES, what estimated quantity will be produced per month?	3040 tons/ annum

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

Suspended and dissolved solids, organic matter and other contaminants are removed from the water to produce potable water. The by-product of this Water Treatment Process is a Water Treatment Residue (WTR) which has a sludge consistency. At present the WTR, is transported to an Umgeni owned property called Brookdale in Howick. The WTR is dispersed over the land on a rotational basis by a muck spreader. Approximately 5.06 tons of WRT/sludge are currently disposed of from the Midmar WWTW at Brookdale per day (1847 tons per annum). With the upgrade of the facility, approximately 8.33 tons per day of WRT/sludge will be generated (3040 tons per annum). This calculation has been based on current water quality. Taking the worst case raw water quality scenario into consideration, 11680 tons per annum of WRT/sludge will be required to be disposed of. Brookdale disposal site has capacity to receive this additional WRT/sludge. There is no existing Waste Management License for the disposal of WRT. Umgeni Water is currently seeking clarification with the DWA with regards to the classification of the WTR. A copy of the letter is attached as Appendix J2. The issue is still unresolved.

If the DWA confirm that the WTR should be classified as a by-product rather than a waste product, then a Waste License Application will not be required. If the effluent discharge permit/licence is still required then this would trigger GNR 718, A, 19 and a WML would be required.

If the classification of WTR to a by-product is not accepted by the DWA, then Waste Management activities that may apply to the Upgrade of Midmar WWTW, in respect of which a Waste Management License is required in accordance with section 20(b) of NEMWA, 2008 (ACT NO. 59 OF 2008) are:

GNR 718 Part 19: The expansion of facilities of or changes to existing facilities for any process or activity, which requires an amendment of an existing permit or license or a new permit or license in terms of legislation governing the release of pollution, effluent or waste. With the upgrade of the facility, approximately 1193-9833 tons p/annum of additional WRT/sludge will be generated. An effluent discharge permit/license exists for the current level of disposal. The effluent discharge permit/license will be amended in line with the increased effluent if required (clarification from DEA pending).

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

N/A

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

Brookdale Farm, Howick.

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?	[redacted] NO

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?	[redacted] NO

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES [redacted]
If YES, what estimated quantity will be produced per month?	N/A m^3
Will the activity produce any effluent that will be treated and/or disposed of on site?	[redacted] NO

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?	[redacted] NO

The activity will not produce effluent, other than normal sewage by staff, during the construction phase that will be disposed of in chemical toilet ablution facilities. These chemical toilets must be located more than 100 m from the wetland, and must be properly maintained. The chemical toilet supplier must empty these toilets, as and when needed.

If YES, provide the particulars of the facility:

Facility name:	N/A		
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:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other that exhaust emissions and dust associated with construction phase activities?	YES	NO
If YES, is it controlled by any legislation of any sphere of government?		NO

If YES, the applicant must consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If NO, describe the emissions in terms of type and concentration:

The activity will not release emissions into the atmosphere other than limited exhaust emissions and dust associated with construction phase activities.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?		NO

If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority **Refer to Appendix J2 for a Screening Report regarding the WTR**

e) Generation of noise

Will the activity generate noise?	YES	
If YES, is it controlled by any legislation of any sphere of government?		NO

If YES, the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA.
If NO, describe the noise in terms of type and level:

Noise will only be generated during the construction phase. Noise generation will be limited to the workers interactions and activities, concrete mixers or pumps etc .

13. WATER USE

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

		River, stream, dam or lake		

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:	393ML p/day 11 000ML p/mth
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES

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

In terms of Section 39 of the NWA, a GA has been granted for certain activities that are listed under the NWA that usually require a Water Use License. Such a GA exists for wetland rehabilitation as long as the activities are for conservation purposes. As some of the rehabilitation activities may entail 'impeding or diverting the flow of water in a watercourse' and / or 'altering the bed, banks, course or characteristics of a watercourse', a number of GA's have been registered with the DWA for structures that would ordinarily require a Water Use License. For each planning cycle the proposed rehabilitation work will be submitted to DWA, the requisite approval sought, and project monitoring reported as required.

Note: An application to amend the existing Water-Use License is currently being made. Proof of the application will be submitted as Appendix K to the FBAR

14. ENERGY EFFICIENCY

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

No new energy efficient measures have been included because the technology will match the infrastructure at the existing Pumpstation, WW and Sludge Treatment Plant.

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

There are ltd energy requirements for the proposed construction activities, as the majority of the work entails labour and plant. Materials and labour will be brought to site daily in vehicles. Therefore fuel for these vehicles and for machinery work, will be the only source of energy used.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

1. 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): [ ]

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

3. 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 each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Kwa-Zulu Natal
District Municipality	uMgungundlovu
Local Municipality	uMngeni
Ward Number(s)	
Farm name and number	• 129 of 950 Allemans Drift Farm (UW owned) (SG Code NOFT00000000095000129) • Portion 461 of 950 (Remaining Extent) Allemans Drift Farm (SG Code NOFT00000000095000461) • Portion 460 of 950 Allemans Drift Farm (Eskom owned) (SG Code NOFT00000000095000460) • Portion 506 of 905 (SANRAL owned) (SG Code NOFT00000000095000506)

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:

Agriculture (uMngeni Local Municipality IDP)

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

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

Flat						

Alternative S2 (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

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

2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline		2.4 Closed valley		2.7 Undulating plain / low hills	
2.2 Plateau	X	2.5 Open valley		2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

Proposed raw water transfer pipeline	**Alternative S1: Route A**		**Alternative S2 Route B:**	
Shallow water table (less than 1.5m deep)	YES		YES	
Dolomite, sinkhole or doline areas		NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES		YES	NO
Unstable rocky slopes or steep slopes with loose soil		NO	YES	NO
Dispersive soils (soils that dissolve in water)		NO	YES	NO
Soils with high clay content (clay fraction more than 40%)		NO	YES	NO
Any other unstable soil or geological feature		NO	YES	NO
An area sensitive to erosion		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. GROUNDCOVER

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

The proposed raw water transfer pipeline Route A:

Natural veld - good condition[E]	**Natural veld with scattered aliens[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**

The Pumphouse, Water Works and Mill Falls Sludge Treatment Plant

Natural veld - good condition[E]	Natural veld with scattered aliens[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

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

5. SURFACE WATER

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

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

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

Two patches of wetland habitat were found between the Midmar dam wall and the Pumphouse on either side of the R103 at approximately 29º 29' 38.44'' S and 30º 12' 14.76'' E. .

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:

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 residential[A]	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant[A]	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 dam[A]	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

Natural Area

The Vegetation Assessment found that the natural areas affected by the proposed pipeline route were degraded and overgrazed by cattle. Over half of the species observed were exotic, and a number of those species have been declared as prohibitive. The Wetland Delineation observed two patches of historically disturbed wetland habitat areas. Approximately 170m of the 1.6km proposed pipeline will traverse these areas. A Biodiversity Rehabilitation Plan has been developed to restore the natural environment along the proposed pipeline route post-construction, and is contained in Appendix H.

Dam or Reservoir/River

The Mgeni River flows from the Midmar Dam wall approximately 300 metres to the north west of the pumpstation meandering east, then south for approximately 3.5 km passing the Mill Fall Sludge Treatment Plant at a distance of approximately 60 metres. The river will not be affected by the pipeline route as the pipeline will be constructed in the opposite direction to the river.

Wetland

The pipeline will traverse two patches of wetland habitat between the Midmar dam wall and the Pumphouse on either side of the R103 at approximately 29º 29' 38.44'' S and 30º 12' 14.76'' E for 170m.

Nature Reserve

The proposed development will occur between two Nature Reserves. Midmar Nature Reserve directly bordering the west of the development, and Umgeni Nature Reserve 2km to the east. The proposed development will have no effect on the Nature Reserves provided that Alien invasive vegetation is adequately controlled and mitigations for the prevention of soil and water pollution contained in the EMPr are adhered to.

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

Railway Line The proposed pipeline will cross the Spoornet Railway at GPS coordinate 29º29'52.32" and 30º12'51.14" . A jack pipe culvert will be required to accommodate the new pipe. A way-leave will be required from Spoornet Railway line. Major Road The proposed pipeline will cross the N3 National Road at GPS coordinate 29º29'40.20" and 30º12'29.56". A jack pipe culvert will be required to accommodate the new pipe. A way-leave will be required from SANRAL.

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

N/A

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)		NO
Core area of a protected area?		NO
Buffer area of a protected area?	YES	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:	NO
No features of cultural or historical value were identified during field inspections.	

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

N/A

Will any building or structure older than 60 years be affected in any way?	NO

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 unemployment rate was approximately 17% in 2009. There is a shortage of skilled and highly skilled labour in the economic sectors with the potential in the formal sector for labour absorption being poor. The primary sector of employment for mainly semi-skilled and unskilled is dominated by the Agricultural sector but there is a decline in employment within the agricultural sector which is a significant employment issue.

Economic profile of local municipality:

According to the uMngeni Local Municipality IDP, Gross Value Added (GVA) output shows that the tertiary economic sector has been outperforming the three sectors (Primary, Secondary and Tertiary) and has grown from R1937million in 2006 to R2 266million in 2010 at an annual growth rate of 4 %, The primary sector has declined from R 489 million in 2006 to R 484 million in 2010 at an average annual growth rate of -0.2 %. The secondary sector has increased from 2006 at R 765 million to 2008 at R 843 million, and a decrease from in 2009 to R 777million, thereafter an increase to R 812 million in 2010 and has grown in production value atan average annual growth rate of 1.5 %.

Level of education:

According to the uMngeni Local Municipality Economic Profile for uMngeni Local Municipality (January 2012) developed by Urban-Econ Development Economist, the formally employed individuals fell within the highly skilled, skilled or semi- and unskilled categories (2010). Percentage of formally employed were found to be in the skill categories as follows:

- Semi- and unskilled category 50%.
- Skilled category 40%.
- Highly skilled category 11%.

The Report indicates that there is a shortage of skilled and highly skilled formal employees in all the economic sectors, Primary, Secondary and Tertiary.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R350 million
What is the expected yearly income that will be generated by or as a result of the activity?	unknown
Will the activity contribute to service infrastructure?	YES
Is the activity a public amenity?	YES
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	100

What is the expected value of the employment opportunities during the development and construction phase?	R5 million
What percentage of this will accrue to previously disadvantaged individuals?	90%
How many permanent new employment opportunities will be created during the operational phase of the activity?	10
What is the expected current value of the employment opportunities during the first 10 years?	R10 million
What percentage of this will accrue to previously disadvantaged individuals?	90%

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)

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The area is a buffer zone to the Midmar Nature Reserve. In addition, although the area is transformed and degraded, the conservation status of the Midlands Mistbelt Grassland is endangered.

b) Indicate and describe the habitat condition on site

Habitat Condition	**Percentage of habitat condition class (adding up to 100%)**	**Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).**
Natural	39 %	The condition of the grassland constitutes only 39% of the Bioresource Group 5 benchmark. The species types are indicative of grassland that has been selectively to severely overgrazed and cattle dung was found in all the areas proposed for the pipeline. No evidence of the ten species endemic to Midlands Mistbelt Grassland were found within the development area. The grass layer is highly degraded. The current veld condition is dominated by *Eragrostis curvula, Eragrostis plana, Eragrostis racemosa, Hyparrhenia hirta, Sporobolus africanus,*

		Sporobolus pyramidalis, Loudetia simplex, Microchloa caffra, Paspalum scrobiculatu, Paspalum notatu, Pennisetum clandestine, Forbs, Sedges, *Aristida junciformis, Diheteropogon filifoliu.*
Near Natural (includes areas with low to moderate level of alien invasive plants)	11%	As above.
Degraded (includes areas heavily invaded by alien plants)	30%	The dominance of *Eragrostis curvula, Eragrostis plana, Eragrostis racemosa, Hyparrhenia hirta, Sporobolus africanus, Sporobolus pyramidalis, Loudetia simplex, Microchloa caffra, Paspalum scrobiculatu, Paspalum notatu, Pennisetum clandestine*, Forbs and Sedges, indicates that the grass has been severely overgrazed, presenting as a mix of short and tall grass patches. Forty-six percent of the non-graminoid plant species found within the areas observed are exotic species. Four of these (*Cirsium vulgare, Solanum mauritianum, Rubus cuneifolius and Argemone ochroleuca*) are classed as Category 1, prohibited invader plant, in terms of the Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983) The two patches of wetland, of which an area of approximately 300m² will be affected by the proposed pipeline construction has already been disturbed by previous pipeline construction.
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20 %	The two patches of wetland, of which an area of approximately 300m² will be affected by the proposed pipeline, has been disturbed by previous pipeline construction. The other affected areas are mostly used for services such as: • Pipelines (Petronet) • Power lines (Eskom • Roads (N3 SANRAL, R103 uMngeni Municipality) • Rail (Spoornet)

c) Complete the table to indicate:

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

Terrestrial Ecosystems		**Aquatic Ecosystems**					
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	[redacted] **Endangered** **Vulnerable** [redacted]	**Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)**		**Estuary**		**Coastline**	
		YES	[redacted]	[redacted]	**NO**	[redacted]	**N**

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)

Vegetation Cover, pipeline route

Characteristics of the area:

- The area is classified by Mucina & Rutherford (2006) as the endangered Midlands Mistbelt Grassland (GS9) which should be dominated by tall, forb-rich Themeda triandra grassland but is mostly transformed to the Aristida junciformis dominated indigenous grassland. This veg unit has generally been invaded by a number of invasive species, such as *Solanum mauritianum, Rubus sp, Acacia sp, Pinus sp and Eucalyptus sp. Endemic species to the Midlands Mistbelt Grassland include Acalypha entumenica, Selago longiflora, Asclepias woodii, Albuca xanthocodon, Dierama luteoalbidum, Kniphofia latifolia, Pachycarpus rostratus, Watsonia canaliculata, Helichrysum citricephalum* and *Syncolostemon latidens* (Of these 10 endemic species, 5 are classified as endangered and four as vulnerable).

Specialist Study findings:

- None of these ten species were found within the proposed pipeline development area.
- The current veld condition is 39% natural with a dominance of Eragrostis curvula, Eragrostis plana, Eragrostis racemosa, Hyparrhenia hirta, Sporobolus africanus, Sporobolus pyramidalis, Loudetia simplex, Microchloa caffra, Paspalum scrobiculatu, Paspalum notatu, Pennisetum clandestine, Forbs, Sedges, Aristida junciformis, Diheteropogon filifolius
- The dominance of Eragrostis curvula, Eragrostis plana, Eragrostis racemosa, Hyparrhenia hirta, Sporobolus africanus, Sporobolus pyramidalis, Loudetia simplex, Microchloa caffra, Paspalum scrobiculatu, Paspalum notatu, Pennisetum clandestine, Forbs and Sedges, indicates that the grass has been severely overgrazed, presenting as a mix of short and tall grass patches.
- Forty-six percent of the non-graminoid plant species found within the areas observed are exotic species. Four of these (*Cirsium vulgare, Solanum mauritianum, Rubus cuneifolius and Argemone ochroleuca*) are classed as Category 1, prohibited invader plant, in terms of the Conservation of Agricultural Resources Act (CARA) (Act 43 of 1983). The exotic species include *Bidens bipinnata, Cirsium vulgare, Conyza bonariensis, Plantago lanceolata, Solanum mauritianum, Tagetes minuta, Trifolium repens, Verbena bonariensis, Verbena officinalis, Rubus cuneifolius, Acacia mearnsii, Argemone ochroleuca, Lactuca serriola, and Taraxacum officinale.*

- The remaining 54% of non-graminoid species are indigenous and include *Asparagus sp. Cyperus cf esculentus, Helichrysum pallidum, Helichrysum cooperi, Nidorella auriculata, Pelargonium luridum, Senecio madagascariensis, Senecio sp. Teucrium kraussii, Berkheya erysithale,s Sida sp. Gomphocarpus physocarpus, Crassula alba, Asparagus asparagoides, Helichrysum sp. and Zantedeschia aethiopica.*
- The Assessment of the proposed route for the pipeline found that the grass layer in the areas allocated is highly degraded.
- The condition of the grassland constitutes only 39% of the Bioresource Group 5 benchmark. The species types are indicative of grassland that has been selectively to severely overgrazed and cattle dung was found in all the areas proposed for the pipeline.
- 47% of the non-grasses were found to be exotic species, of which four are classed as prohibited invader plants (Category 1) which must be controlled or eradicated.
- The most invaded section of the proposed area was found to be between the N3 National Road and the R103 Main Road. It is likely that conditions will worsen over time.

Wetland area, pipeline route

Characteristics of area:

- The site is within catchment U20D. Annual mean precipitation is 974mm. Potential annual evapotranspiration is 1622mm. Mean annual run-off 240mm.
- Property is underlain by shale and subordinate sandstone of the Volksrust Formation, Ecca Group intruded by Jurrasic dolerites sills and dykes.
- Grassland Biome, Wetlands of Sub-Escarpment grassland group 3 wetland vegetation type, within Midlands Mistbelt Grassland.
- No FEPA features present.

Specialist Study Findings:

- Two patches of wetland habitat were found between the Midmar dam wall and the Pumphouse on either side of the R103 at approximately 29º 29' 38.44'' S and 30º 12' 14.76'' E. .
- One patch is temporarily inundated, drier and characterised by grasses whilst the other patch is seasonally inundated and characterised by tall sedges.
- The species in the wetland areas include:
  - Temporary wetland - *Eragrostis plana , E curvula, Sporobolus pyramidalis, Aristida junciformi and, Hyparrhenia hirta.*
  - Seasonal to permanent wetland - *Cyperus latifolius, Hemartthria altissma , Paspalum urvillei, Fimbristylis dichotoma, Leersia hexandra , Eleocharis dregeana*.
  - Man- made soil profile, permanent wetland - *C. Latifolius, Typha capensus , L. hexandra, Arundinella nepalensis.*
- Of the length of the proposed 1.6km pipeline, 170m of pipeline will traverse wetland area. The affected area will constitute approximately 300m².
- A pipeline construction has disturbed these wetland areas in the past with a man-made soil profile in some areas from construction infill.
- Typically, the drier wetland area has recovered less well in terms of composition than the wetter area (vegetation unaffected). It is thus anticipated that the proposed pipeline will have a similar effect on the wetland area.
- Re-vegetation and the control of alien species is thus the recommended approach to rehabilitation post-construction.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	The Witness	
Date published	Thursday, 28 March 2013	
Site notice position	**Latitude**	**Longitude**
	Pumphouse 29°29'37.06" S	30°12'17.67" E
	Midmar WW 29°29'58.93" S	30°13'04.66" E
Date placed	18 March 2013	

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

2. DETERMINATION OF APPROPRIATE MEASURES

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Dominic Wieners	EKZN Wildlife	wienersd@kznwildlife.com
Andrew Ferindinos	KwaZulu-Natal Crane Foundation	andrew@enviroplan.co.za
Penny Rees	Duzi-Umgeni Conservation Trust (DUCT)	pennyduct@vodamail.co.za
Nora Choveaux	PMMB Trust	nac@pmmbtrust.org
Bernice Cullis	Upper Mngeni Catchment Management Forum	cullisb@dwaf.gov.za
Casper Landman	SANRAL - Regional Mgr	LandmanC@nra.co.za
Mike Holloway	Transnet Ltd	michael.holloway@transnet.net
Michelle Nicol	Eskom	NicolM@eskom.co.za

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

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

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Does the upgrade include the construction of another plant?	No. The upgrades are to the existing Midmar Pumpstation, WW and existing Mill Falls Sludge Treatment Plant.
In terms of infrastructure, does Eskom have the capacity to cater for the upgrade?	Yes.
And the waste generated?	Suspended and dissolved solids, organic matter and other contaminants are removed from the water to produce potable water. The by-product of this Water Treatment Process is a Water Treatment Residue (WTR) which has a sludge consistency. At present the WTR, is transported to an Umgeni owned property called Brookdale in Howick. The WTR is dispersed over the land on a rotational basis by a muck spreader. Approximately 5.06 tons of WRT/sludge are currently disposed of from the Midmar WWTW at Brookdale per day (1847 tons per annum). With the upgrade of the facility, approximately 8.33 tons per day of WRT/sludge will be generated (3040 tons per annum). This calculation has been based on current water quality. Taking the worst case raw water quality scenario into consideration, 11680 tons per annum of WRT/sludge will be required to be disposed of. Brookdale disposal site has capacity to receive this additional WRT/sludge.Refer to Appendix I for a detailed discussion regarding the Waste Treatment Residue.
There is concern about the proposed pipeline route and the N3 Highway.	The EAP has registered as an I&AP for the SANRAL N3 project DC14/12/16/3/3/1/932. A full assessment of potential impacts on this project will be undertaken once the information has been received from the SANRAL EAP representative. The Municipality will be responded to as soon as the information has been received. This will be reported on in the FBAR.
Umgeni Water need to make sure that the proposed pipeline does not interfere with any servitudes and infrastructure	Noted. This will be done.
Notice of a basic assessment Application Reference DC14/12/16/3/3/1/932. SANRAL proposes the widening and upgrading of the existing N3 Toll Road from a four-lane dual carriageway to a six-lane dual carriageway between the Cedara interchange (N3-4km 1,6) and km 15,0 in the Umngeni area. Will this have an impact on the proposed pipeline for the Midmar Water Works?	See response above.
Raw water pipeline: we assume this is from Midmar Dam to the Water Works. There are extensive wetlands between Midmar Dam and	Yes that is correct. The preferred route for the pipeline will not follow the existing pipeline route which is adjacent to the Mgeni River and within the riparian

the Water Works and it would be preferable that these are avoided.	corridor. Instead, it is proposed to take the shortest most direct route furthest from the Mgeni River and associated riparian corridor.
Mills Falls Sludge Treatment Plant / Outlet Works: this is situated on the east side of the indicated water works on the BID aerial photo, and lies between the water works and the river. Of concern will be any potential impacts from the construction and outlet as the river in this area is already impacted, and thus further impacts are to be avoided, particularly as stated in the BID, soil erosion. Care will have to be taken with any construction during the summer months as if Midmar Dam is overflowing, water levels in the river below the dam are raised and could contribute to erosion.	Noted. The EMPr will serve to protect the environment from unnecessary impacts caused from construction. However, the impacts are expected to be minimal at the Mill Falls Sludge Treatment Plant because there is only minor upgrade works to do within the existing footprint.
Riverine habitat destruction should be avoided at all costs	Noted and agreed. This is not expected to be a potential major impact for this development as the pipeline route is not proposed in the location of the river course apart from the start point, inlet at Midmar dam wall.
With regards to the document received on 7 March 2013, the Department requests that a Vegetation Specialist Report should be compiled and included in the Draft Basic assessment Report, for the whole area to assist in determining the extent that the development may have on the natural vegetation/natural forests or protected trees under the National Forests Act, 1998 (Act No. 84 of 1998), then further comments will be passed.	Noted. This has been done. The Specialist Studies are contained in Appendix D, and the impacts have been noted within the Report with appropriate mitigations developed and included in the Environmental Management Programme in Appendix G.

4. COMMENTS AND RESPONSE REPORT

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

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
SAHRA	Jenna Larvin	021 462 4502	021 462 4509	info@sahra.org.za	PO Box 4637, Cape Town, 8000
AMAFA	Weziwe Tshabalala	033 3946543	033 3426097	archaeology@amafapmb.co.za	P O Box 2685, Pietermaritzburg, 3200
DWA (National)	Paul Meulenbeld			MeulenbeldP@dwa.gov.za	
Department of Water Affairs	Manisha Maharaj	031 336 2750		thakurdinm@dwa.gov.za	PO Box 1018, Durban, 4000
DEA, WfW	Daleen Strydom	082 335 8122	086 613 6355	Dstrydom@environment.gov.za	
DAFF	Love Shabane	013-754 0734	013-754 0735	LoveS@nda.agric.za	
DAFF	A. Mnyungula	033 3927738		AyandaMn@nda.agric.za	P/Bag x 9029, Pietermaritzburg, 3200
National Department of Agriculture	Lufuno Sethomota	012 319 7634		lufunos@daff.gov.za	Private Bag x120, Pretoria, 0001
Provincial Department of Agriculture	Hennie Laas	082 401 0868	017-819 1295	mp.landbou@mweb.co.za	
Umngeni Local Municipality	Marc Hattingh	033 239 9261		hattingm@umngeni.gov.za	P O Box 5 Howick 3290
Umgungundlovu District Municipality	Mandisa Khomo	033 897 6700	033 342 5502	mandisa.khomo@umdm.gov.za	P O Box 3235 Pietermaritzburg 3200
Department of Transport	Roy Ryan	033 355 0570	033 342 3962	roy.ryan@kzntransport.gov.za	Private Bag X9043, Pietermaritzburg 3200

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

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

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

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

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

SECTION D: IMPACT ASSESSMENT

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

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

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

A) Planning and Design Phase

There are no direct, indirect or cumulative impacts for the environment in the Planning and Design Phase, other than the positive impacts associated with the employment of appropriate professionals involved in the development and assessment of the proposal.

B) Construction Phase

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
	Direct impacts:		
	Job creation: • The Wetland rehabilitation will result in job provision and skills transfer. This in turn will promote the opportunity for re-employment. Although there are established teams working for WfWetlands, there will also be employment opportunities for members of the local community.	Medium (+)	• Project workers should be sourced from local communities where possible. • Local business should be supported, with respect to the purchase of materials, where possible.
	Fire risk: • Construction workers could cause a fire on site (construction usually takes place in the dry winter months when the danger of veld fires is highest).	Without mitigation: High (-) With mitigation: Neutral	• Workers must be made aware of the potential for fires to become out of control and the damage that could be caused. • Fire response procedure should be in place (the rehabilitation programme should be planned in consultation with the landowner to take the land fire protection/firebreak regime into consideration).

Activity	Impact summary	Significance	Proposed mitigation
	Nuisance impacts: • Potential noise from construction activities, personnel and vehicles. • Potential dust from earthworks. • Security concerns. • However, the area is mostly reserved for services, thus the above impacts are likely to be of low significance. • Increased traffic congestion is likely to occur as a result of slow moving construction vehicles moving onto and off the sites. However, this is likely to be minimal.	Without mitigation: Medium (-) With mitigation: Low (-)	• Site workers must undergo environmental induction training before undertaking work so that they are aware of the various environmental requirements. The induction training must address keeping noise to a minimum and labourers conduct. • Utilise local labour wherever possible to reduce potential friction within the community caused by bringing outside personnel in. • Ensure that the staff uniforms are worn so that their workers are clearly identifiable. • Signs should be erected on the entrance gates to the Pumphouse, Midmar WW and Mill Falls Sludge Treatment Plant indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime.
	Soil erosion: • Mismanagement of construction vehicles. • Potential for soil erosion as a result of the removal of existing vegetation whilst clearing. • Inadequate erosion management.	Without mitigation: Medium (-) With mitigation: Neutral	• All construction vehicles and machinery and equipment must be properly maintained to prevent leaks. • Vegetation clearing on the site should take place only immediately prior to construction in order to minimise the time the soil is bare, thus minimising soil erosion, dust and visual impacts. • Once earthworks are complete, disturbed areas are to be stabilised to prevent erosion.
	Waste management • An increase in the amount of litter being generated • Non-use of sanitation facilities.	Without mitigation: Medium (-) With mitigation: Neutral	• The environmental induction training must address the management of sanitation facilities and general site management. • The site must be managed appropriately and all rubbish and rubble must be collected in appropriate waste receptacles and disposed of at the nearest landfill site.
	Heritage Impacts • Although no heritage resources have been observed within the Wetlands, it is always possible that a heritage resource could be encountered.	Neutral	• Should any artefact / suspected artefact / site of cultural significance be encountered during construction, then the Contractor must cease work in that vicinity and alert the relevant authorities.
	Safety of workers • Safety risks to workers could include sustaining injuries associated to construction machinery use and working in dangerous traffic areas e.g. close to the N3 National Road.	Without mitigation: High (-) With mitigation: Neutral	• The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations. • Potentially hazardous areas are to be cordoned off and clearly marked at all times. • All vehicles and equipment used on site must be operated by appropriately trained and / or licensed personnel.

Activity	Impact summary	Significance	Proposed mitigation
			• All personnel must operate in compliance with all safety measures as laid out in the Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA). • The Contractor must make available safe drinking water fit for human consumption. • Washing and toilet facilities must be provided on site. • Adequate numbers of chemical toilets must be maintained to service the staff using this area. At least 1 toilet must be available per 20 workers. Toilet paper must be provided. • Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).
	<u>Flora and Fauna disturbance</u> • The proposed pipeline route will be constructed over an area 1.6km in length and this area will require the clearing of vegetation and earthworks. Although the habitat disturbance during the construction will be temporary, it will affect floral growth and faunal breeding patterns. • If not managed correctly, the disturbance to this area will encourage further alien infestation. • Poaching of animals for food by the construction workers is a potential risk.	Without mitigation: Medium (-) With mitigation: Low (-)	• Damage to the habitats must be kept to a minimum to prevent loss of species, soil erosion and sediment pollution from run-off. Thus, unnecessary clearing of vegetation must be avoided and a phased approach to the clearing of the proposed pipeline route should be adopted to limit extended periods of ground exposure. • Clearing should also be avoided during sensitive periods of the year (e.g. bird nesting season and flooding periods). • The disturbed areas must be re-vegetated as soon as possible after clearing. • Site workers must undergo environmental induction training before undertaking work so that they are aware of the various environmental requirements. • No threatened flora should be collected or harvested and no threatened fauna should be hunted.
	<u>Aquatic eco-system impacts</u> • In order to work in the wetter areas, water diversion, using sand bags for example, may be required during construction. This leads to a temporary alteration in the stream flow pattern, a temporary change in drainage characteristics and a temporary drying out of the affected area. This can affect aquatic organisms. • Additional sediment could enter the watercourse during construction when working with sediment (earthworks and sand bags). This could result in the build-up of silt downstream, and thus the increase in water turbidity, both affecting the aquatic eco-system (a low impact is anticipated, especially since the Wetland has the ability to trap	Without mitigation: Medium (-) With mitigation: Low (-)	• If required to be used, sandbags must be in a good condition, so that they do not burst. • Earth that is used to fill sand bags should come from and be returned to the designated existing excavation points. • Soil used in interventions must be stabilised as per the engineer's recommendations to counteract the dispersive tendencies. • If water is required beyond the limits of the general authorisation by DWA, then additional authorisation prior to such abstraction must be sought.

Activity	Impact summary	Significance	Proposed mitigation
	sediment). • Pollution from construction-related activities could enter the grasslands or wetland ecosystems system (fuel leaks, fluid spills, litter, cement and contaminated wash-down water).		
	Wetland soil profile disturbance • There is a risk of soil compaction, draining, drying and desiccation from stockpiling and soil profile disturbance during construction activities.	Without mitigation: Medium (-) With mitigation: Low (-)	• Wetland Soil should be stored in different layers in different locations according to the different layers of the soil profile. • The WfWetlands Manual for general guidelines should be consulted.
	Indirect Impacts		
	Job creation • The potential impact of this is significant and has a number of indirect positive impacts such as improvement in quality of life of the workers, increased spending in the local economy and the support of small business in the local area.	Without mitigation: Medium (+) With mitigation: High (+)	• Ensure that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration. • Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.
	Cumulative impacts:		
	Job creation • Cumulatively, the impact of the job provision is positive.	Without mitigation: Medium (+) With mitigation: High (+)	• Ensure that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration. • Project implementers to support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.
	• Potential for alien vegetation, which may become established on the cleared sites, to spread to other natural areas.	Without mitigation: High (-) With mitigation Low (-)	• An alien vegetation control programme must be implemented on the site which makes provision for the monitoring and management of vegetation post-construction.
No-go option			
	Direct, Indirect and Cumulative impacts:		
	Grassland, Wetland and Aquatic ecosystem disturbance: • The no-go option will avoid the negative impacts resulting from the disturbance of the natural areas during construction of the proposed pipeline like soil erosion and soil and water pollution.	Medium (+)	• If the no go alternative is pursued the disturbance to the natural habitat, albeit degraded, will be avoided, however, the operational-related impacts will then not be realised which in this case will mean that the critical Regional water Scheme will not be able to be delivered. In particular, potable water to communities in eThekwini Municipality will not be able to be provided. The provision of water to more people, as in the eThekwini community as part of the Regional water Supply Scheme, necessitates the upgrade of the Midmar WW. • There is currently only one raw water transfer pipeline supplying
	Nuisance impacts • Pursuing the no-go alternative will mean that the nuisance impacts associated with construction will not be realised.	Low (+)	
	Socio-economic • No jobs will be created in the no-go option.	High (-)	

Activity	Impact summary	Significance	Proposed mitigation
	• Industries that provide goods, materials and services will not benefit from the construction phase		raw water to the Midmar WW. The pipeline is a strategic asset with a very high risk rating because the provision of potable water will be interrupted should this pipeline fail. A second raw water transfer pipeline must be constructed to mitigate this risk.

B) Operational Phase

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
	Direct impacts:		•
	Project operational impacts include: • Mitigation to risk of single existing raw water transfer pipeline failure. The pipeline is considered a strategic asset with a very high risk rating because the provision of potable water will be interrupted should this pipeline fail. The second raw water transfer pipeline is now proposed to mitigate this risk. • Provision of potable water to regional communities to address a critical shortage of supply. • Regional bulk water supply schemes have been proven to provide economies of scale and improve water quality and service provision • Operational cost savings: The second pipeline will result in operational cost savings associated with reduced pumping energy costs from improved hydraulic functioning.	High (+)	N/A
	Employment and skills capacity impact: • Skills learned by the project team during the construction phase will increase the overall skills capacity of the country and can assist in finding permanent employment.	High (+)	N/A
	Monitoring and Management: Biodiversity rehabilitation: • If the recommendations pertaining to the monitoring and management of the environment contained within the Biodiversity Rehabilitation Plan in Appendix J1 is not adhered to, then there is the potential for the newly planted vegetation to not become established due to lack of irrigation or from being overrun by alien vegetation which have not been removed timeously. Fire Management • Incorrect application of fire management in the Wetland could	Without mitigation: Medium (-) With mitigation Neutral/ possible medium (+) for those areas with improved biodiversity due to alien vegetation	Biodiversity rehabilitation: • The Rehabilitation Plan must be implemented and the implementation thereof monitored. • Rehabilitation of the natural habitat around the development sites must be well-established once the development is complete. • Any areas of erosion which establish should be rehabilitated as soon as possible. Fire Management: • Burning should be applied to a Wetland of low rainfall region

Activity	Impact summary	Significance	Proposed mitigation
	reduce the potential for the vegetation to establish and hinder the rehabilitation process, thereby affecting the Wetlands ability to improve its water quality enhancement function. • Flora and fauna need the opportunity to seed and breed respectively. Burning regimes that are too frequent can lead to impairing the habitats ability to renew itself. General • If the pipeline is not maintained and the pipeline leaks then the composition of the environment will be affected unnaturally through increased water supply.	clearing and establishment of indigenous vegetation.	(<900 mm p. a.) every 4 to 5 years. • Adhere to the Wetland management recommendations for burning practices on this Wetland. General • A robust monitoring programme must be in place and records of logged incidents must be kept (e.g. pollution events). • Any incident that cause or may cause soil or water pollution shall be reported to the relevant authorities. • The pipeline route must be regularly monitoring for leaks and maintained where necessary
	Cumulative impacts:		
	The cumulative impacts associated with the provision of water include • Access to water for those currently without access • Meeting the water demand for a growing population. • Reducing water-borne diseases through the provision of new water service infrastructure and improving hygiene and health through the supply of water to people who currently have no access to water. • Enabling development - Investment in new developments, currently halted due to lack of water service provision, will be enabled through the provision of water. This in turn will create jobs and economically uplift the community.	High (+)	N/A
	• The lack of proper follow-up required as part of the rehabilitation of the proposed pipeline route could result in further degradation of the environment and the spread of alien vegetation into nearby nature conservation areas.	Without mitigation: Medium (-) With mitigation Neutral – Medium (+)	• Adherence to the Rehabilitation Plan is critical to the long-term health of the affected environment and that of neighbouring environments, in particular, the Nature Reserves in the area.
No-go option			
	Direct, Indirect and Cumulative impacts:		
	<u>Grassland, Wetland and Aquatic ecosystem disturbance:</u> • The no-go option will avoid the negative impacts resulting from the disturbance of the natural areas during construction of the proposed pipeline like soil erosion and soil and water pollution.	Medium (+)	• If the no go alternative is pursued the disturbance to the natural habitat, albeit degraded, will be avoided, however, the operational-related impacts will then not be realised which in this case will mean that the critical Regional water Scheme will not be able to be delivered. In particular, potable water to communities in eThekwini Municipality will not be able to be provided. The provision of water to more people, as in the eThekwini community as part of the Regional water Supply Scheme, necessitates the upgrade of the Midmar WW.
	<u>Nuisance impacts</u> • Pursuing the no-go alternative will mean that the nuisance impacts associated with construction will not be realised.	Low (+)	
	<u>Socio-economic</u> • No jobs will be created in the no-go option.	High (-)	

Activity	Impact summary	Significance	Proposed mitigation
	• Industries that provide goods, materials and services will not benefit from the construction phase		• There is currently only one raw water transfer pipeline supplying raw water to the Midmar WW. The pipeline is a strategic asset with a very high risk rating because the provision of potable water will be interrupted should this pipeline fail. A second raw water transfer pipeline must be constructed to mitigate this risk.

C) Decommissioning and Closure Phase

There were no anticipated situations were any decommissioning would be required.

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

2. ENVIRONMENTAL IMPACT STATEMENT

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

Alternative A (preferred alternative)

Type of impact	Negative/Positive environmental impact	Likelihood of potential impacts occurring	Duration of impact	Significance of impact
Construction				
Job creation	**Positive**	Certain	Temporary/Permanent	High
Fire risk	Negative	Low probability	Temporary	Low
Construction nuisance	Negative	Low probability	Temporary	Low
Soil erosion	Negative	Low probability	Temporary	Low
Waste management	Negative	Low probability	Temporary	Low
Heritage impacts	Negative	Low probability	Temporary	Neutral
Safety	Negative	Low probability	Temporary	Low
Flora and fauna disturbance	Negative	Low probability	Temporary	Low
Aquatic eco-system impacts	Negative	Low probability	Temporary	Low
Wetland soil profile disturbance	Negative	Low probability	Temporary	Low
Sourcing borrow material	Negative	Low probability	Temporary	Low
Operational				
Mitigation to risk of single raw water transfer pipeline failure	Positive	Certain	Long-term	High
Provision of potable water to regional communities	Positive	Certain	Long-term	High
Employment and skills capacity	Positive	Certain	Long-term	High
Operational cost savings	Positive	High probability	Long-term	Medium
Improvement in water service and water quality	Positive	High probability	Long-term	High
Biodiversity rehabilitation	Positive	Medium probability	Long-term	Medium
Fire management	Negative	Low probability	Short- Long-term	Neutral
Maintenance of pipeline	Negative	Low probability	Temporary – Medium term	Neutral

The proposed Project activities, involving the upgrade to the Umgeni Water Midmar Pumphouse, Waterworks and Mill Falls Sludge Treatment Plant will occur on the existing footprints of the properties. The related construction activities are not considered to have a significant impact on the environment. However, during the Construction Phase, there will be general disturbance to flora, fauna, aquatic ecosystems and the wetland soil profile during implementation of the proposed second raw water transfer pipeline construction activities. These negative impacts are considered acceptable, given the significantly high social benefits associated to providing the critical service of potable water supply. The negative human impacts associated with construction nuisances are considered to have low significance, considering that the mitigations are easy to apply, and that the Construction Phase is temporary. There are no negative environmental impacts related to the operational phase provided that maintenance of the pipeline is on-going and the monitoring and management aspects contained

within the Biodiversity Rehabilitation Plan are adhered to.

Positive impacts related to the construction phase are job creation and improved skills capacity. The positive operational phase impacts are:

- The proposed second raw water transfer pipeline will mitigate the risk of potable water supply service interruption which is currently a high strategic risk due to there currently only being one raw water transfer pipeline feeding the Midmar WW. The significance of the risk will increase if the upgrade of the WW is implemented without a second pipeline as the WW will serve millions of more people once the upgrade has been implemented.
- The benefits of significant capital investment already made on water supply infrastructure which forms a part of the Regional Water Supply Scheme can only be fully realised once the upgrade of Midmar WW is operational. This includes the Mooi-Mgeni Water Transfer Scheme and the eThekwini Western Aqueduct, the purpose of which is to make potable water available to communities on a regional basis and to address current and future water scarcities.

It is thus concluded that the proposed will have a negligible, short-term, negative effect on the receiving environment during construction; and a significantly high positive effect, which would be permanent during operation.

No-go alternative (compulsory)

If the no go alternative is pursued the disturbance to the natural habitat, albeit degraded, will be avoided, however, the operational-related impacts will then not be realised which in this case will mean that the critical Regional water Scheme will not be able to be delivered. In particular, potable water to communities in eThekwini Municipality will not be able to be provided. The provision of water to more people and an increasing population, as part of the Regional Water Supply Scheme, necessitates the upgrade of the Midmar WW.

In addition, if the second raw water transfer pipeline is not established, then the communities currently being served by UW from the Midmar WW will continue to be at risk of having no access to water should the existing raw water transfer pipeline fail.

Other impacts associated to the no-go alternative are:

- Failure to address the inequalities of the past as those currently without access to water will continue to suffer.
- Failure to address the prevalence of water-borne diseases associated to the lack of adequate water service infrastructure, and hence failure to improve health of communities.
- Failure to support much needed development – without adequate services, investment in new developments like housing, currently halted due to lack of water service provision, will continue to be disabled through the lack of water provision.

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	[redacted]

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

N/A

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

- The EMPr and the Biodiversity Rehabilitation Plan must be adhered to.

Detailed mitigations must include:

CONSTRUCTION PHASE

- Project workers must be sourced from local communities where possible.
- Local business must be supported, with respect to the purchase of materials, where possible.
- Workers must be made aware of the potential for fires to become out of control and the damage that could be caused.
- Fire response procedure must be in place (the rehabilitation programme should be planned in consultation with the landowner to take the land fire protection/firebreak regime into consideration).
- Site workers must undergo environmental induction training before undertaking work so that they are aware of the various environmental requirements. The induction training must address keeping noise to a minimum and labourers conduct.
- Utilise local labour wherever possible to reduce potential friction within the community caused by bringing outside personnel in.
- Ensure that the staff uniforms are worn so that their workers are clearly identifiable.
- Signs must be erected on the entrance gates to the Pumphouse, Midmar WW and Mill Falls Sludge Treatment Plant indicating that no temporary jobs are available, thereby limiting opportunistic labourers and crime.
- All construction vehicles and machinery and equipment must be properly maintained to prevent leaks.
- Vegetation clearing on the site must take place only immediately prior to construction in order to minimise the time the soil is bare, thus minimising soil erosion, dust and visual impacts.
- Once earthworks are complete, disturbed areas are to be stabilised to prevent erosion.
- The environmental induction training must address the management of sanitation facilities and general site management.
- The site must be managed appropriately and all rubbish and rubble must be collected in appropriate waste receptacles and disposed of at the nearest landfill site.
- Should any artefact / suspected artefact / site of cultural significance be encountered during construction, then the Contractor must cease work in that vicinity and alert the relevant authorities.
- The site and crew are to be managed in strict accordance with the Occupational Health and Safety Act (Act No. 85 of 1993) and the National Building Regulations.
- Potentially hazardous areas are to be cordoned off and clearly marked at all times.
- All vehicles and equipment used on site must be operated by appropriately trained and / or licensed personnel.
- All personnel must operate in compliance with all safety measures as laid out in the

Occupational Health and Safety Act (Act No. 85 of 1993) (OHSA).

- The Contractor must make available safe drinking water fit for human consumption.
- Washing and toilet facilities must be provided on site.
- Adequate numbers of chemical toilets must be maintained to service the staff using this area. At least 1 toilet must be available per 20 workers. Toilet paper must be provided.
- Necessary Personal Protective Equipment (PPE) and safety gear appropriate to the task being undertaken is to be provided to all site personnel (e.g. hard hats, safety boots, masks etc.).
- Damage to the habitats must be kept to a minimum to prevent loss of species, soil erosion and sediment pollution from run-off. Thus, unnecessary clearing of vegetation must be avoided and a phased approach to the clearing of the proposed pipeline route should be adopted to limit extended periods of ground exposure.
- Clearing must be avoided during sensitive periods of the year (e.g. bird nesting season and flooding periods).
- The disturbed areas must be re-vegetated as soon as possible after clearing.
- Site workers must undergo environmental induction training before undertaking work so that they are aware of the various environmental requirements.
- No threatened flora must be collected or harvested and no threatened fauna must be hunted.
- If required to be used whilst working within wetland areas, sandbags to stabilise, must be in a good condition, so that they do not burst.
- Earth that is used to fill wetland area sand bags should come from and be returned to the designated existing excavation points.
- Soil used in interventions must be stabilised as per the engineer's recommendations to counteract the dispersive tendencies.
- If water is required beyond the limits of the general authorisation by DWA, then additional authorisation prior to such abstraction must be sought.
- Wetland Soil should be stored in different layers in different locations according to the different layers of the soil profile.
- The WfWetlands Manual for general guidelines must be consulted.
- It must be ensured that the required Project workers are sourced from local communities and that maximum employment numbers are maintained throughout the Project duration.
- Project implementers must support local businesses (e.g. local quarry owners to obtain rock for gabions) where possible.
- An alien vegetation control programme must be implemented on the site which makes provision for the monitoring and management of vegetation post-construction.
- The Rehabilitation Plan must be implemented and the implementation thereof monitored.
- Rehabilitation of the natural habitat around the development sites must be well-established once the development is complete.
- Any areas of erosion which establish must be rehabilitated as soon as possible.
- Adhere to the Wetland management recommendations for burning practices on this Wetland.
- Any incident that cause or may cause soil or water pollution shall be reported to the relevant authorities.
- The pipeline route must be regularly monitored for leaks and maintained when necessary.

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.

Rebecca Bowd
NAME OF EAP

_____ 26 June 2013
SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix D1: Vegetation Assessment

Appendix D2: Freshwater Ecosystems Study

Appendix E: Public Participation

Appendix E1: Adverts

Appendix E2: Notifications to I&AP's

Appendix E3: Comments and Responses Report

Appendix E4: Notification to Authorities and Organs of State

Appendix E5: Registered I&APs list

Appendix E6: Copies of correspondence received

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J1: Biodiversity Rehabilitation Plan

Appendix J2: Midmar Screening Report and Umgeni Water correspondence to DWA regarding the Classification of Water Treatment Residue

Appendix J3: uMngeni Municipality Environmental Priority Areas Map

Appendix J4: Water License Application (To be appended in FBAR)