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Department:
Environment & Nature Conservation
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

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Pella Bulk Water Pipeline Upgrade Project

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Prepared by:

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(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of **08 December 2014**. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority
3. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of "not applicable" in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?	YES	~~NO~~

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

The Biodiversity Company: Mr Andrew Husted, Terrestrial Screening, Riverine Baseline Study & Risk Assessment, and Floodline Delineation.
Heritage Contracts and Archaeological Consulting: Mr Jaco van der Walt: Heritage Assessment

1. ACTIVITY DESCRIPTION

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

1. Introduction:

Black Mountain Mining (Pty) Ltd, part of Vedanta Zinc International (VZI), owns and operates the Gamsberg Zinc Mine. In 2010 Vedanta Resources, the holding company of VZI, acquired Black Mountain Mining (Pty) Ltd from Anglo American as part of the sale of Anglo American's zinc assets. Following the acquisition of the Black Mountain Mining properties and rights, a feasibility and optimization of technology study for the Gamsberg Zinc Mine was undertaken. The mining activities commenced in June 2016 when overburden stripping for the open pit commenced. The mining plan for Phase 1 consisted of three smaller open pits in the footprint of the 10 million ton per annum footprint. Development of the opencast mine and concentrator plant has been done in phases. The construction of the concentrator plant commenced in 2017 with the official opening in February 2019. Phase 2 will expand the mining capacity to 10 million tonnes per annum (mtpa) open pit.

Water is currently sourced from the Orange River through an intake pump house located at Pelladrift, almost 30 km to the north east of the Gamsberg Zinc Mine. The current water demand, with the Black Mountain Mine operation and Phase 1 concentrator plant at Gamsberg, is 28 ML/day, the existing intake water pumping system has been designed for 40.8 ML/day. In order to ensure that the pipeline capacity will meet the future water demand and allow for the complete utilization of the currently licensed abstraction volume of 44 ML/day Black Mountain Mining (Pty) Ltd, in conjunction with Sedibeng Water, is proposing to replace and upgrade the existing old underground pipeline and associated infrastructure. This new pipeline will be located within the existing servitude and will supply water to the proposed Gamsberg Smelter Project[1] and existing Gamsberg Mine, Black Mountain Mine and the surrounding towns (including Aggeneys, Pella, Pofadder and local landowners).

SLR Consulting South Africa (Pty) Ltd (SLR) has been appointed to undertake the Basic Assessment (BA) process for the proposed water infrastructure upgrades. The following section provides a brief description of the baseline environment of the proposed project area and provides a description of the proposed activities which will be undertaken with respect to this application.

2. Description of the receiving environment:

a) Climate

The area is classified as a hot desert region with very low rainfall and very high evaporation rates, has an arid climate although rainfall (average of 98 mm/year) occurs in summer and winter as the area lies in a transition zone between winter and summer rainfall areas. Summers are hot and mean maximum temperatures in January, the hottest month, range between 30.7°C and 35.4°C. During winter, mean maximum temperatures range from 17.8°C to 20°C with significant temperature reductions at night.

The mean annual average temperatures are just below 20°C with very hot summers and cool to mild winters. The Mean Annual Evaporation (MAE) of 2 650mm was determined by the 1990

[1] Black Mountain Mining (Pty) Ltd is proposing to construct a new zinc smelter and associated infrastructure to produce 300 000 tpa of special high grade zinc metal by processing 680 000 tpa of zinc concentrate (Gamsberg Smelter Project). The Gamsberg Smelter Project is subject to a separate Environmental Impact Assessment process. Ref: NCS 30/5/1/2/2 (518)MR).

Water Research Commission (WRC) publication "Surface Water Resources of South Africa." (SRK, 2010). Wind over the period 2016 to 2018 (as modelled by Airshed, 2019) is primarily from the south.

b) Topography

According to ERM (2013)[2] the local topography is characterised by undulating plains, containing low growing shrubby vegetation and grasses. The surrounding plains are approximately 750 – 900 metres above mean sea level (mamsl), with the highest areas of the Gamsberg inselberg varying between 1 100 – 1 150 mamsl. The Gamsberg inselberg is approximately 7.2 km east – west and approximately 4.6 km north – south in size. Erosion along the top of the inselberg has resulted in the creation of a basin within the feature, which subsequently varies between 60 – 70 m below the rim of the inselberg. Mining of this basin is currently in progress and has resulted in changes to the topography of the inselberg and surrounding areas. A waste rock dump is being constructed on the northern slope of the inselberg, facing the N14 highway. The concentrator plant, Run of Mine (ROM) crusher and associated conveyors, offices and workshops have been constructed at the foot of the inselberg. The Tailings Storage Facility (TSF) has been constructed on the northern side of the N14 highway and will reach a final design height of 30 m .

c) Regional Geology

The Gamsberg zinc deposit is developed in a medium to high grade metamorphic volcano-sedimentary succession belonging to the Aggeneys Sub-Group of the Bushmanland Group. This Group is bordered to the east by the Hartbees River Thrust, to the north by the Groothoek Thrust and Wortel Belt, and it is overlain by Karoo-age rocks to the south. Together these Groups occur within the Namaqualand Metamorphic Complex, which consists of Precambrian metamorphic rocks and intrusives formed or metamorphosed during the Namaqua Orogeny (ERM, 2013).

d) Surface Water

The project area is located within the Lower Orange Water Management Area (WMA) in the D81G and D82A quaternary catchments. The Sub Quaternary Reaches (SQR's) of concern for this determination are the ephemeral 3rd order 20 km long T-Goob se Laagte River (D81G – 03731 - SQR) and associated tributaries. The T-Goob se Laagte River is a largely natural (class B) river with a moderate ecological status and sensitivity (DWS, 2020). The remaining watercourses of concern are tributaries of the ephemeral D81G – 03840 SQR and a tributary of the ephemeral D82A – 03779 SQR (Mik River).

e) Biodiversity

See Section 9 (d) on Page 37.

f) Socio-economic

See Section 8 on Page 32.

[2] Environmental Resources Management (ERM). Environmental and Social Impact Assessment Report for the Gamsberg Zinc Mine and Associated Infrastructure in the Northern Cape. Final Report. June 2013

3. Project description

3.1 Existing Water Infrastructure

Sedibeng Water (previously the Pelladrift Water Board) is authorised to abstract 16 060 000m³ per annum (daily abstraction of 44 ML/day) of water from the Orange River for domestic and industrial purposes (Authorisation for the abstraction of water -B159/1/77/12/5 of 30 September 1999 and Registered under Certificate No 25035649 of 25 June 2009, which superseded 121/77/12/5/78 of 01 December 1978). The existing underground water pipeline and associated reservoirs are located within an existing registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S). Refer to Figure 1 below for a schematic diagram of the existing water supply system.

The current existing infrastructure includes the following (please refer to Appendix 1 for the General Layout map showing existing and proposed new infrastructure):

- Abstraction point with pump station (low lift pump station) along the Orange River near Pella, with an existing design pumping capacity of 40.8 ML/day;
- 1.1 km pipeline connecting the Orange River pump station to the Water Treatment Plant (WTP);
- WTP with an existing design treatment capacity of 27.5 ML/day;
- High-Lift Pump Station for the single lift steel pipeline with a capacity of 12.5 ML/day;
- One 400mm diameter steel underground bulk water pipeline approximately 30 km in length from the WTP to Horseshoe Reservoirs;
- One 500mm diameter above ground bulk water pipeline approximately 30 km in length from the WTP to the Horseshoe Reservoirs, including two pump stations with a capacity of 20 ML/day (within the same servitude as the underground pipeline) approved under the Northern Cape Department: Environment DENC Environmental Authorisation (NC/BA/NAM/KHA/PEL-AGG1/2012 and NCP/EIA/0000190/2012 and under the General Authorisation for water use activities (27/2/1/D182/1/3/4/5) from the Department of Water and Sanitation;
- Two reservoirs (Horseshoe Reservoirs) with an existing storage capacity of 2 ML each (4 ML in total);
- A 400mm diameter AC underground water pipeline from the Horseshoe Reservoir to the Kokerboom and Saddleback reservoirs, extending over a distance of 20km;
- The Kokerboom reservoir with an existing storage capacity of 1.2 Ml;
- Saddleback reservoir with an existing storage capacity of 20 Ml; and
- Power for the existing WTP, High-Lift Pump Station and Tower (Low-Lift) Pump Station is sourced from the Eskom Pelladrift Sub Station, consisting of two 5 MVA transformers. No upgrade is required for the additional infrastructure.

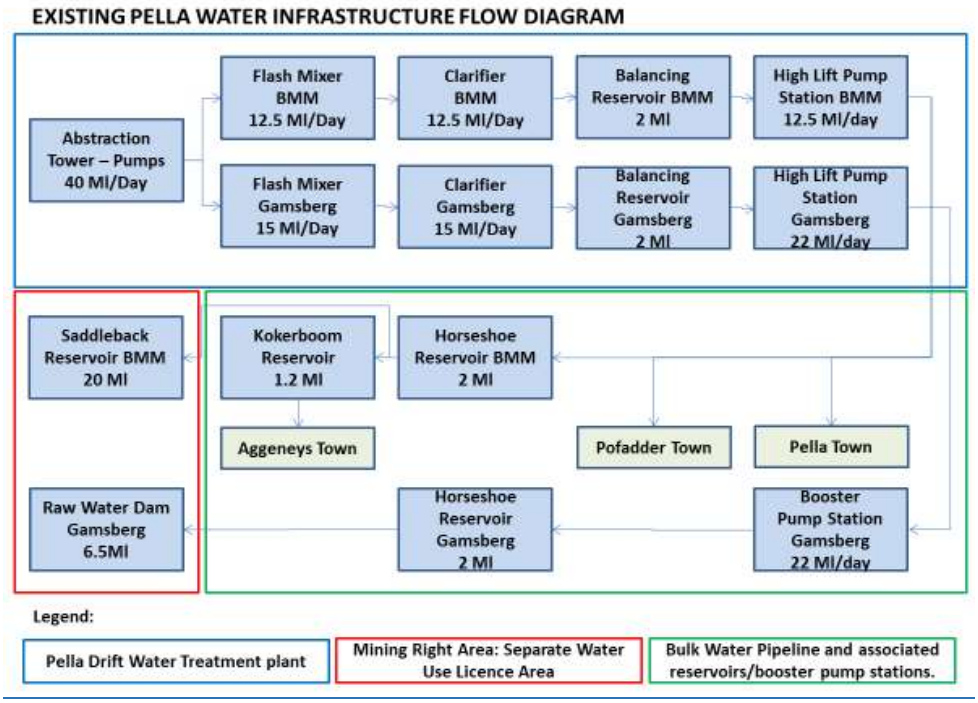

Figure 1:Existing Infrastructure Flow Diagram

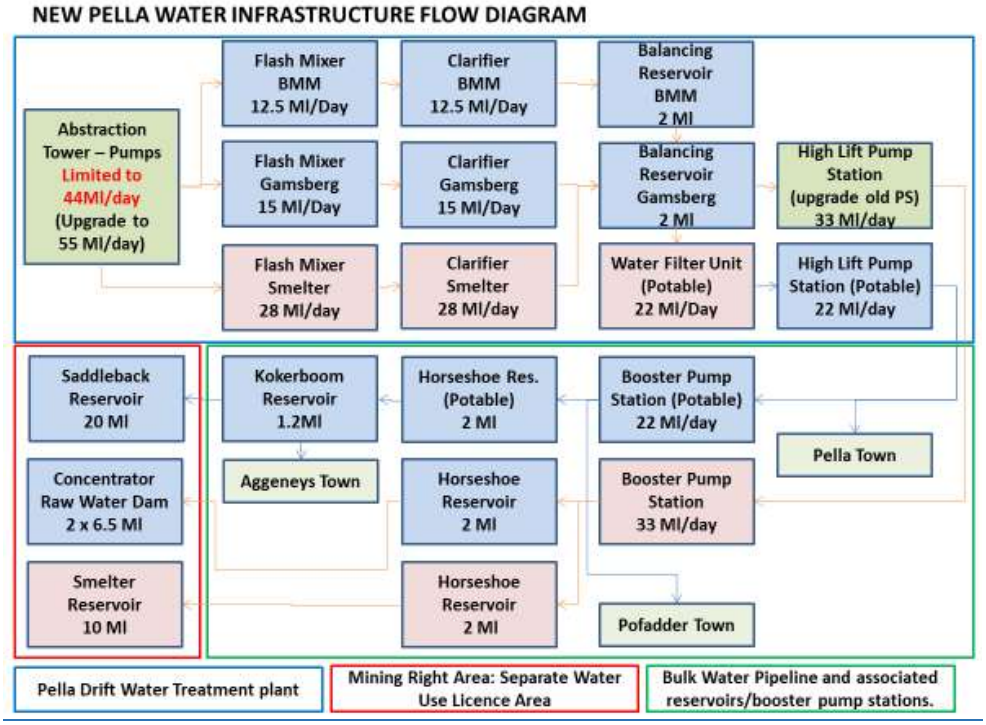

Figure 2 Existing and New Infrastructure Flow Diagram

3.2 Proposed Bulk Water Pipeline Augmentation

The proposed new bulk water pipeline and associated infrastructure is included in Figure 2. In order to ensure that the pipeline capacity will meet the future water demands and allow for the complete utilization of the currently licensed abstraction volume of 44 ML/day, Black Mountain Mining (Pty) Ltd is proposing to replace and upgrade the existing old underground pipeline with a new underground bulk water pipeline on behalf of Sedibeng Water. Upon completion of the pipeline the ownership will be transferred to Sedibeng Water. The existing underground pipeline will be decommissioned and removed and replaced by the new upgraded pipeline. The new underground pipeline will, be laid in the existing servitude. The following sections describe the portions of the new underground pipeline and the relevant upgrades to the existing infrastructure that would be required.

3.3 Intake Water System

There is currently an intake tower in the Orange River near to Pella (Figure 3) from which water is abstracted (See Appendix 1). Currently the Sedibeng Water has a permit to abstract 44ML/day, however the current abstraction is only 40 ML/day. There is thus capacity available to abstract a further 4 ML/day. Additional water capacity has been set aside for the towns Pella (0.5ML/day), Pofadder (1ML/day) and Aggeneys (2ML/day) bringing the total water use to ±43ML/day. In order to pump this additional volume, the capacity of the intake pumping system would need to be increased. From studies undertaken on the existing intake tower, it has been observed that the footprint of the existing abstraction tower is satisfactory for the additional water demand and this could be achieved by replacing the existing pumps with three new variable speed drives with higher capacity pumps. The capacity of each pump would be 27.6 ML/day (1 150m^3/hr) at a 35 m head. The necessary modification of the existing foundations will be done as per requirement and will be limited to superstructure alterations only.

Figure 3 Abstraction tower in the Orange River

3.4 Pipeline from the Low-Lift Pump House to the WTP

The existing Diameter Nominal (DN) 500 steel piping inside the existing intake tower would be replaced with DN 600 carbon steel pipe which is 100mm larger than the existing DN 400 steel pipe.

A pipeline similar and parallel to the existing pipe from the low-lift pump house within the abstraction tower to the WTP is envisaged. From the pump house this pipeline would be laid over the existing bridge covering a distance of approximately 90 m. Thereafter it would be buried underground up to the WTP. The overall length of this pipeline is approximately 1.1 km. The two pipelines would be connected before feeding the flash mixers within the WTP to form a closed loop. Necessary flow control valves, isolation valves and surge protection systems would be provided.

3.5 Upgrade of WTP

A new clarification plant with a 28 ML/day capacity would be constructed at the Pella WTP. The new clarification unit will comprise coagulant (two 1 000 litre tanks with combined coagulant/ flocculant), chlorine gas (four 1000 kg tanks, two in operation and two storage – these tanks are already installed and approved) and flocculant dosing facilities, a flash mixer (28 ML/day), and other associated facilities and a sludge handling system. Chemical dosing facilities which would include storage tanks, dosing pumps etc. would be installed to treat up to 55 ML/day of water.

Space available in the existing chemical room would be used for housing the new chemical dosing facilities with chemical storage provided by the 'chlorine tank and storeroom' which is next to the chemical store (refer to Appendix 1). One additional 22 ML/day filter system and two additional sludge ponds, the same as the existing one, would also be installed with a total capacity of 1 875m^3 for both sludge ponds and 937.5 m^3 each. The sludge is not considered to be hazardous as it consists predominantly of suspended solids (soil, clay, grit, and detritus) which only negatively affects the aesthetic quality of the water.

3.6 Bulk Water Pipeline Upgrades (Between Pella WTP and Horseshoe Reservoirs)

The existing underground pipeline from Pella WTP to Horseshoe Reservoirs will be decommissioned and removed. The new underground pipeline would be laid within the existing underground water pipeline excavation. The new pipeline would be laid from the WTP to the Horseshoe Reservoirs, covering a total distance of approximately 30km.

The proposed pipeline upgrades in this section comprise the following:

- High-lift pump house to the Horseshoe Reservoirs - construction of a new 600 mm diameter ductile iron underground pipeline from the high-lift pump house to the Horseshoe Reservoirs. The length of the pipeline is approximately 30 km.
- Horseshoe Reservoirs to Gamsberg Zinc Mine - the existing pipeline from the Horseshoe Reservoirs to the Gamsberg Zinc Mine will be upgraded with a new 630mm diameter HDPE pipeline which will run in parallel to the existing above ground pipeline (**this section of the pipeline is within the Gamsberg Zinc Mine Mining Right Area (MRA) and as such will be included in the Gamsberg Smelter EIA - Ref: NCS 30/5/1/2/2 (518)MR**).

The pipeline from the Horseshoe Reservoirs to Black Mountain Mine will not be upgraded and will remain as they are.

All the sections of the new pipeline, as well as the associated infrastructure mentioned above, will be placed within the existing servitude or on land owned by the mine.

3.6 Horseshoe Reservoirs

There are two existing reservoirs at Horseshoe, each with a storage capacity of 2ML. A new 2 ML reservoir (Reservoir 3) would also be constructed on this site with a footprint of 225 m^2 in close

proximity to the existing Horseshoe Reservoirs (namely Horseshoe Reservoir 3). Horseshoe Reservoir 3 will be within the existing servitude. There is no licence for the original reservoir which was constructed by the Pella Water Board (now Sedibeng Water). The second existing reservoir was approved under a General Authorisation (Water use Certificate 10181000 in Appendix J).

Table 1 Horseshoe Reservoir 3 design parameters

Name	Dam type	Storage capacity	Wall height	Inundation area
Horseshoe Reservoir 3	Concrete	2 MLD / 2000m^3	6m	900m^2

3.7 Power Supply

Power for the existing WTP, High-Lift Pump Station and Tower (Low-Lift) Pump Station is sourced from the Eskom Pelladrift Sub Station, consisting of two 5 MVA transformers. No upgrade is required for the additional infrastructure.

Power for the existing Booster Pump Station is sourced from the 4 MVA 66/11 kV Gamsberg transformer via an 11kV power line, 26km south-west of the pump station. This power line and transformer can only supply 2 MVA to the booster station and must therefore be upgraded. The total power needed for the new and old booster pump station will be 5 MVA. The Eskom midway Sub Station is approximately 3 km away from this 11 kV power line but needs to be upgraded from 1 x 5 MVA to 2 x 10 MVA transformers in order to provide sufficient power to the booster pump station. The supply voltage of the power line must change to 22kV as well as the transformers at the booster pump station.

The footprint for the upgraded booster pump station will be ~50 m^2. Due to terrain constraints the upgraded substation must be moved a short distance to allow for the additional infrastructure.

3.8 Booster Pump Stations and New Booster Pump Station Reservoir

As good engineering practice, an additional booster pump-house has been provided for the Gamsberg piping network. It is located between the high-lift pump house and the Horseshoe Reservoirs and facilitates a low-pressure circuit. Both the high-lift pump house and booster pumphouse of the Gamsberg circuit have four pumps each having a 7.536 ML/day (314 m^3/ hr) capacity and associated piping which has been designed considering three (3) pumps are working at a time. Currently two (2) pumps are under operation as these are sufficient to cater for the present water demand. The proposed new booster pumping system will allow for 460 m^3/hr of water to be pumped towards the Horseshoe Reservoirs. The reservoir will have a capacity of 0.85 ML or 850 m^3.

The booster pump station and reservoir will be adjacent to the existing booster pump station and within the servitude.

The following should be noted:

- All new water infrastructures will be located within the existing servitude. For ease of reference, the centre point coordinates of various sections of the registered servitude are attached as Appendix A.
- The residual effluent discharge from the WTP is not classified as hazardous waste.

- The volume of residual effluent discharge to the sludge drying beds is approximately 0.1 % of the total volume of water abstracted from the Orange River.
- The volume of clay content in effluent discharge is approximately 1 - 6% of the total volume of water discharged from the clarifier, depending on actual turbidity of the raw water taken from the Orange River. The existing and upgraded WTP will remain outside the 1:100-year floodline of the Orange River.

It is assumed, for purposes of this Basic Assessment process that any waste generated by the Pella Water Board's WTP will not trigger the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM: WA).

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

Listed activity as described in GN 734, 735 and 736	Description of project activity
Listed Activity as described in the National Environmental Management Act: EIA Regulations, 2014 (as amended)	
GN 983 Activity 9: The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water 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 infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or b) where such development will occur within an urban area.	A new 30 km bulk water pipeline would be constructed from the existing Orange River abstraction point to replace the old underground pipeline with DN 600 D.I pipeline with an internal diameter of 0.6m with the capacity to transport 28ML/day or 324ℓ/s water. Together with the existing DN 500 above ground pipeline the system will be able to supply 44ML/day.
GN 983, Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving- a) will occur behind a development setback;	A new 30 km bulk water pipeline would be constructed from the existing Orange River to the Horseshoe Reservoirs. A total of eight watercourse crossings have been identified (Table 4).

b) is for maintenance purposes undertaken in accordance with a maintenance management plan; c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	
GN 983, Activity 31: The decommissioning of existing facilities, structures or infrastructure for - I. any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; II. any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014; III. … Deleted. IV. any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 3 of 2014; or V. any activity regardless the time the activity was commenced with, where such activity: a) is similarly listed to an activity in (i) or (ii) above; and b) is still in operation or development is still in progress; excluding where - (aa) activity 22 of this notice applies; or (bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies	The existing underground bulk water pipeline will be decommissioned and replaced with a proposed new underground bulk water pipeline.

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014.Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

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

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred) • Starting point of the activity • Middle/Additional point of the activity • End point of the activity	The proposed activity involves replacing the existing DN 400 steel piping with a DN 600 carbon steel pipe (refer to Section 1(a) for full activity description). As such, the preferred site option will be to decommission the existing underground pipeline and lay the new pipeline in the same footprint. Please refer to Appendix J for list of co-ordinates for the linear bulk water co-ordinates.	
Alternative S2 (if any) No site alternatives have been assessed as the proposed new pipeline would directly replace the existing underground pipeline. The preferred site option aims to limit potential disturbances (environmental and social) within the project area.		
• Starting point of the activity	Not Applicable	
• Middle/Additional point of the activity	Not Applicable	

• End point of the activity	Not Applicable	

Alternative S3 (if any)

• Starting point of the activity	Not Applicable	
• Middle/Additional point of the activity	Not Applicable	
• End point of the activity	Not Applicable	

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.

Please refer to Appendix J for a list of co-ordinates for the linear bulk water pipeline.

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

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The proposed new bulk water pipeline will replace the existing underground bulk water pipeline within an existing servitude. For this reason, no layout alternatives have been assessed as part of this project.		
Alternative 2		
N/A		

c) Technology alternatives

No technology alternatives were considered.

Alternative 1 (preferred alternative)
Alternative 2
Alternative 3

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

No further alternatives were considered as the preferred alternative is to replace the existing underground pipeline which is being decommissioned.

Alternative 1
Alternative 2

Alternative 3

e) No-go alternative

The "no-go" alternative means that the status quo remains, meaning that no new bulk water pipeline would be constructed and the old pipeline would remain in use. The existing underground pipeline is old and requires regular maintenance due to leakages which result in shutdowns and the associated cut off of water supply for the surrounding towns which are dependent on this pipeline. The towns of Pella, Pofadder and Aggeneys would not benefit from the installation of the new bulk water pipeline and the associated increase in reliability of water supply, as well as the provision of additional water for future growth and development of these towns. The town of Pofadder will also not benefit from the proposed Midway substation upgrade, thus prohibiting the towns growth prospects due to the lack of additional electricity capacity.

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:**
Alternative A1[3] (preferred activity alternative)	Not Applicable
Alternative A2 (if any)	Not Applicable
Alternative A3 (if any)	Not Applicable

or, for linear activities:

Alternative:	**Length of the activity:**
All alternatives would be within the same, existing servitude	
Alternative A1 (preferred activity alternative)	30 000 m
Alternative A2 (if any)	Not Applicable
Alternative A3 (if any)	Not Applicable

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

Alternative:	**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)	900 000 m^2
Alternative A2 (if any)	Not Applicable
Alternative A3 (if any)	Not Applicable

[3] "Alternative A.." refer to activity, process, technology or other alternatives.

4. SITE ACCESS

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

Describe the type of access road planned:

There is an existing access road within the servitude that runs the full length of the proposed pipeline.

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

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

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	~~NO~~	~~Please explain~~
The existing servitude is currently used for two bulk water pipelines (one above ground, one underground). The new bulk water pipeline will remain within this servitude and will replace the existing underground bulk water pipeline.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	~~NO~~	~~Please explain~~
As per the 2018 Northern Cape PSDF, access to water resources are restricted in most of the Northern Cape and are a main determinant of development trends due to the dependence on water supply. A key attribute of the PSDF strategy is to manage water demand and maintain, expand and refocus the water infrastructure network to enable and sustain bulk water supply. The supply of water will facilitate the development of the Gamsberg Smelter Project that would boost economic development as envisaged by the Northern Cape PSDF and therefore is aligned with the PSDF.			

(b) Urban edge / Edge of Built environment for the area	~~YES~~	NO	Please explain
The proposed bulk water pipeline will not be within the urban edge/edge of built environment for the area. The new water pipeline and associated infrastructure will be located within an existing registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S) which runs from the abstraction point along the Orange River near Pella to a reservoir in the Gamsberg Zinc Mine Mining Rights Area (MRA) (See Section 5 Layout Map).			
(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~~	NO	Please explain
The IDP and SDF of the Khâi-Ma Local Municipality would not be compromised by the proposed bulk water pipeline project. As per the Khâi-Ma Rural SDF (2010) Pofadder, Aggeneys, Pella, Onseepkans and Witbank obtain water from the Orange River. Pofadder and Aggeneys require an upgraded water treatment works. Should this upgrade of the Pella Bulk Water Pipeline go ahead the Pelladrift water treatment works would also be upgraded thus ensuring potable water (which meets the SANS 241 (2015) Drinking Water Standards) would be provided to the abovementioned towns, as well as the provision of additional water capacity allowing for the growth in water demand from the towns of Pofadder, Pella and Aggeneys. Water is a significant limiting factor to growth and development in the Northern Cape.			
(d) Approved Structure Plan of the Municipality	YES	~~NO~~	Please explain
The new water pipeline and associated infrastructure will be located within an existing registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S). It is therefore unlikely that this project will be in conflict with the relevant Municipal Structure Plans.			
(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?)	~~YES~~	NO	Please explain
The new water pipeline and associated infrastructure will be located within an existing registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S). It is therefore unlikely that this project will be in conflict with the existing environmental management priorities for the area.			
(f) Any other Plans (e.g. Guide Plan)	~~YES~~	NO	Please explain

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	~~NO~~	~~Please explain~~
The provision of potable water is considered a priority in the water scarce Northern Cape. As the proposed bulk water pipeline falls within an existing servitude, which currently has one above ground and one underground pipeline, the land use is appropriate for the proposed Pella Bulk Water Pipeline project. The bulk water pipeline would need to be completed in time for the Gamsberg Smelter Project, which if Environmental Authorisation is granted, would likely commence in 2023.			
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	~~NO~~	Please explain
The Khâi-Ma area including the towns of Pofadder, Pella, Aggeneys, Witbank and Onseepkans are heavily water stressed. Without the provision of additional water, the above-mentioned towns would not be able to grow, develop and contribute to the economy in any significant manner. The water is also critical for the development of the Gamsberg Smelter Project (should Environmental Authorisation be granted) that would in turn stimulate the local economy and would create both direct and indirect local employment opportunities. However, portions of one of the affected communities (Pella Community Group) has expressed opposition to the pipeline project during the initial consultations and public meetings. See Appendix E3 Comments and Response Report (CRR) for specific comments and the Black Mountain Mining (Pty) Ltd responses.			

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	NO	Please explain
There is currently insufficient pipeline capacity to provide enough water for the proposed Gamsberg Smelter Project. Currently the existing bulk water pipelines transport 28 ML/day. By constructing the proposed new bulk water pipeline there will be capacity for an additional 28ML/day, thus bringing the total water transport capacity to 55ML/day. Sedibeng Water is currently licenced to abstract a maximum of 44ML/day from the Orange River, thus the maximum volume of water that would be transported by the bulk water pipeline would be 44ML/day. Power for the existing WTP, High-Lift Pump Station and Tower (Low-Lift) Pump Station is sourced from the Eskom Pelladrift Sub Station, consisting of two 5 MVA transformers. No upgrade is required for the additional infrastructure. Power for the existing Booster Pump Station is sourced from the 4 MVA 66/11kV Gamsberg transformer via an 11kV power line, 26km south-west of the pump station. This power line and transformer can only supply 2 MVA to the booster station and must therefore be upgraded. The total power needed for the new and old booster pump station will be 5 MVA. The Eskom midway Sub Station is approximately 3 km away from this 11kV power line but needs to be upgraded from 1 x 5 MVA to 2 x 10 MVA transformers in order to provide sufficient power to the booster pump station. The supply voltage of the power line must change to 22kV as well as the transformers at the booster pump station. Due to terrain constraints the upgraded substation for the booster pump station must be moved a short distance to allow for the additional infrastructure.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
Water is supplied to the Khâi-Ma Local Municipality for distribution to the towns of Pella and Pofadder. The Khâi-Ma Local Municipality is then billed by Sedibeng water for volumes sold to the municipal areas.			
7. Is this project part of a national programme to address an issue of national concern or importance?	YES	~~NO~~	Please explain
While not part of a formal National Programme, the Gamsberg Smelter Project (which will rely on this pipeline for access to water) was discussed at the South Africa Investment Conference led by the President of South Africa in October 2018 and again in 2019. Vedanta made a commitment at this conference to an investment of ZAR 21.4 billion in the country's metal industry, a large portion of which is represented by the Gamsberg Smelter Project. Black Mountain Mining and Vedanta Zinc International (VZI) are engaging with a range of government authorities to develop a long-term, post-mining economy for the Aggeneys area.			

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	~~NO~~	Please explain
The existing servitude is currently used for the bulk transportation of water via two existing bulk water pipelines. The existing underground pipeline will be replaced with the proposed new bulk water pipeline. There will be no change in land use.			
9. Is the development the best practicable environmental option for this land/site?	YES	~~NO~~	Please explain
The land use will not change, the servitude is already registered by Sedibeng Water for bulk water pipelines. The upgrade of the pipeline would minimise water wastage from leaks and reduce maintenance requirements for the old pipeline.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
The development of a new bulk water pipeline is required to ensure the proposed new Gamsberg Smelter Project has enough water to commence with additional activities. The anticipated benefits of this project are 6 000 temporary jobs during the construction phase and 2 000 permanent new jobs during the operational phase which will provide a significant boost to the local economy through direct and indirect employment. Apart from this, the pipeline would supply water to the surrounding towns including Aggeneys, Pella, Pofadder and local landowners. The potential negative environmental and social impacts are well understood and can be managed through the effective implementation of the EMPr. As a result, the benefits of the project would significantly outweigh the negative impacts.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	~~YES~~	NO	Please explain
The servitude has been in use for bulk water pipelines since the 1985 when the existing underground pipeline was initially constructed.			
12. Will any person's rights be negatively affected by the proposed activity/ies?	~~YES~~	NO	Please explain
The proposed bulk water pipeline will be constructed in a registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S). However, as discussed in Item 10.4, the Pella Community Group, representing a section of the Pella community, expressed opposition to the pipeline project during the initial consultations and public meetings. See Annexure E3 CRR.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	~~YES~~	NO	Please explain
The proposed bulk water pipeline will not compromise the urban edge. The pipeline will be constructed in a registered servitude owned by Sedibeng Water (Servitude Number: K345/1981S).			

14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	~~NO~~	~~Please explain~~
In line with SIP 6, the proposed bulk water pipeline is being designed to ensure there is sustainable capacity available to ensure the towns of Pella, Aggeneys and Pofadder have sufficient water as well as to allow increased water supply to cater for future growth and development in these areas. Further to this, the existing WTP at Pelladrift will be upgraded to ensure that the water being distributed to the towns and to Gamsberg Mine is of potable water quality in terms of SANS 241 (2015) Drinking Water Quality Standards. Upon completion of the project, the bulk water pipeline will be handed over to the Sedibeng Water Service Provider (WSP) to maintain and manage in collaboration with Black Mountain Mining (Pty) Ltd. An agreement currently exists between the two parties whereby Black Mountain Mining (Pty) Ltd helps maintain the bulk water pipelines.			

15. What will the benefits be to society in general and to the local communities?	Please explain
Benefits of the proposed bulk water pipeline are: • Sustainable water provision to Pella, Aggeneys and Pofadder; • Improved security of water supply (for domestic and industrial uses); and • Provision of bulk water for the Gamsberg Smelter Project that will provide an additional anticipated 6 000 temporary jobs during the construction phase and 2 000 permanent new jobs during the operational phase thus providing a significant boost to the local economy through direct and indirect employment.	

16. Any other need and desirability considerations related to the proposed activity?	Please explain
The Gamsberg Smelter Project is in line with the 'Beneficiation Strategy for the Minerals Industry of South Africa' (DMR, 2011) in terms of aiming to beneficiate the zinc in concentrate to produce high quality zinc ingots for sale/export. The benefits of this will fall directly to the national economy, the Northern Cape Province and the Namakwa District specifically.	

17. How does the project fit into the National Development Plan for 2030?	Please explain
The National Development Plan (NDP) 2030, released in June 2011, sets out a number of primary challenges of which one is that infrastructure is poorly located, inadequate and under-maintained. The construction of the new bulk water pipeline is in line with this primary challenge in that current water provision within Khâi-Ma Local Municipality is inadequate for industrial development and the Sedibeng WSP does not have the resources to adequately maintain these bulk water pipelines. By constructing the proposed new bulk water pipeline, to replace the current underground line and by entering into maintenance agreements with the Sedibeng WSP, this project helps to ensure that local communities have improved access to clean running water in their homes.	

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

In this report, the general objectives of Integrated Environmental Management are taken into account as follows:

- The report identifies, predicts and evaluates the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities;
- This report ensures that the effects of activities on the environment receive adequate consideration by undertaking specialist studies;
- A public participation process with adequate and appropriate opportunities for comment is in progress for the project;
- The consideration of environmental attributes for management and decision making is an integral part of the EMPr;
- The following principles of environmental management as set out in section 2 of the NEMA are applicable to this project:
    - 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;
    - Development must be socially, environmentally and economically sustainable; and
    - Assessment and application of applicable sustainable development objectives, as outlined in Chapter 1, Section 2 of the NEMA.

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

Actions and outcomes of the Environmental Management Programme (EMPr) include considerations for effective environmental management and the principles of sustainable development (Chapter 1, Section 2 (4) of the NEMA) when undertaking any development. Such development must be socially, environmentally and economically sustainable and must place people and their needs at the forefront of its concern, serving their physical, psychological, developmental, cultural and social interests equitably.

By developing a comprehensive EMPr (Appendix G) where the potential environmental impacts are well understood, the best practicable environmental option can be determined. This would include using local knowledge and addressing concerns from local interested and affected parties (I&APs), acknowledging that all elements of the environment are linked and interrelated, and consideration of the effects of decisions on all aspects of the environment and all people in the environment.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

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

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
National Environmental Management Act (NEMA) (No. 107 of 1998) and the EIA Regulations, 2014 as amended			
Listing Notice 1, Activity 9: *The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water 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 infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.*	A new 30km bulk water pipeline would be constructed from the existing Orange River abstraction point to replace the old underground pipeline with DN 600 D.I pipeline with an internal diameter of 0.6m with the capacity to transport 28ML/day or 324ℓ/s water. Together with the existing DN 500 above ground pipeline the system will be able to supply 44ML/day.	Northern Cape Department of Environment and Nature Conservation.	02/09/2014 (as amended)
Listing Notice 1, Activity 19: *The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving - (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in*	A new 30km bulk water pipeline would be constructed from the existing Orange River to the Horseshoe Reservoirs. A total of eight watercourse crossings have been identified.	Northern Cape Department of Environment and Nature Conservation.	02/09/2014 (as amended)

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
accordance with a maintenance management plan; *(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;*			
Listing Notice 1, Activity 31: *The decommissioning of existing facilities, structures or infrastructure for -* *(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;*	The existing underground pipeline will be decommissioned and removed.	Northern Cape Department of Environment and Nature Conservation.	02/09/2014 (as amended)
National Water Act (NWA) (No. 36 of 1998) and Regulations Regarding the Procedural Requirements for Water Use Licence Applications WULA's (GNR 267 of 2017)			
Section 21 (b): storing water	An additional 2ML reservoir is to be constructed at Horseshoe for water storage. A General Authorisation is required for the storage of, up to and including, a maximum volume of 2ML (2000 m^3/annum) within the Orange Water Management Area as per GN. 538 of 2016.	Department of Human Settlements, Water and Sanitation	02/06/2014 (as amended)
Section 21 (c): impeding or diverting the flow of water in a watercourse	The pipeline will require water crossings at the ephemeral streams along the pipeline route. A General Authorisation is required for the 'impeding or diverting of the flow of water or altering the beds, banks, course or characteristics of a watercourse' if the activity is considered low risk as per GN. 509 of 2016. Activity was assessed as a low risk by The Biodiversity	Department of Human Settlements, Water and Sanitation	02/06/2014 (as amended)

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
	Company Aquatic Assessment (February 2020, Appendix D).		
Section 21 (g): disposing of waste in a manner which may detrimentally impact on a water resource	Sludge that will be generated at the additional clarifiers and sludge ponds at the WTP will need to be disposed of in the relevant manner. A General Authorisation is required to store domestic and/or biodegradable industrial wastewater for the purpose of disposal of up to 10 000 m^3 per property or land as per GN. 399 of 2004. Sludge ponds will be the same as the existing. The total capacity of both sludge ponds is 1 875 m^3 and therefore below the threshold.	Department of Human Settlements, Water and Sanitation	02/06/2014 (as amended)
Section 21 (i): altering the bed, banks, course or characteristics of a watercourse	The pipeline will require water crossings at the ephemeral streams along the pipeline route. A General Authorisation is required for the 'impeding or diverting of the flow of water or altering the beds, banks, course or characteristics of a watercourse' if the activity is considered low risk as per GN. 509 of 2016. Activity was assessed as a low risk by The Biodiversity Company Aquatic Assessment (February 2020, Appendix D).	Department of Human Settlements, Water and Sanitation	02/06/2014 (as amended)

12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	~~NO~~

If YES, what estimated quantity will be produced per month? | m^3

The volume of solid waste to be generated is not currently known but will consist of the decommissioned existing underground pipeline and any waste generated during both the decommissioning of the existing underground pipeline and the construction of the proposed Pella bulk water pipeline.

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

All solid waste produced during construction will be removed from the site by an approved waste contractor.

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

All wastes that cannot be reused or recycled would be collected by approved waste contractors and transferred to the Black Mountain Mine waste site (which is a registered landfill site) and salvage yard.

Will the activity produce solid waste during its operational phase? ~~YES~~ NO
If YES, what estimated quantity will be produced per month?
How will the solid waste be disposed of (describe)?

Not applicable

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

Not applicable

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

Not applicable

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

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

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

b) Liquid effluent

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

Will the activity produce effluent that will be treated and/or disposed of at another facility?	~~YES~~	NO

~~If YES, provide the particulars of the facility:~~

~~Facility name:~~			
~~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. No wastewater will be generated by the proposed Pella Bulk Water Pipeline project.

c) Emissions into the atmosphere

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

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

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

N/A

d) Waste permit

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

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

e) Generation of noise

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

Describe the noise in terms of type and level:

N/A

13. WATER USE

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

~~Municipal~~	~~Water board~~	River, stream, dam or lake	~~Other~~	~~The activity will not use water~~

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate the volume that will be extracted per month: Volume is based on current abstraction rate of 40.8 ML/day (over 30 days)	1 224 Ml	
Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?	YES	~~NO~~

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

Proof will be provided upon submission to DWS.

14. ENERGY EFFICIENCY

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

All energy efficiency guidelines have been followed from the design stage, these include:

- Supply of energy efficient equipment;
- variable speed drives; and
- low friction pipelines etc.

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

No alternative energy sources have been taken into account.

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.

This section has only been completed once as all activities will be undertaken within the existing servitude.

Section B Copy No. (e.g. A): **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 ~~NO~~

If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape
District Municipality	Namakwa District Municipality
Local Municipality	Khâi-Ma Local Municipality
Ward Number(s)	3 & 4.
Farm name and number	Servitude Number: K345/1981S
Portion number	N/A
SG Code	N/A

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:

Registered Servitude Number: K345/1981S

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

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

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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 S2 (if any): Not applicable

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): Not applicable

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	X
2.2 Plateau		2.5 Open valley	X	2.8 Dune	
2.3 Side slope of hill/mountain		2.6 Plain		2.9 Seafront	
2.10 At sea					

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

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

Natural veld - good condition[E]	Natural veld with scattered aliens[E]	~~Natural veld with heavy alien infestation[E]~~	~~Veld dominated by alien species~~	~~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.

A biodiversity specialist was consulted for their input. The Specialist Reports can be found in Appendix D.

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~~	NO	
Seasonal Wetland	~~YES~~	NO	
Artificial Wetland	~~YES~~	NO	
Estuarine / Lagoonal wetland	~~YES~~	NO	

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

The abstraction tower for the existing (as well as the proposed) Pella Bulk Water Pipeline is situated in the perennial Orange River with the WTP situated within close proximity. A current abstraction licence allows the abstraction of a maximum of 44 ML/day.

A further section of the existing underground pipeline, which will be replaced by the proposed new underground bulk water pipeline, traverses through a section of T_Goob se Laagte River, a non-perennial tributary of the Orange River which passes through an open valley of the Great Pella Mountains providing access to Pelladrift where the existing abstraction tower and water treatment works are located (See locality plan in Appendix A).

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 stationH~~
~~Medium density residential~~	~~School~~	Landfill or waste treatment site
~~High density residential~~	~~Tertiary education facility~~	~~Plantation~~
~~Informal residentialA~~	~~Church~~	~~Agriculture~~
~~Retail commercial & warehousing~~	~~Old age home~~	River, stream or wetland
~~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)~~

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

Not applicable.

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

Not applicable.

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

Not applicable.

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

Critical Biodiversity Area (as per provincial conservation plan)	YES	~~NO~~
Core area of a protected area?	~~YES~~	NO
Buffer area of a protected area?	~~YES~~	NO
Planned expansion area of an existing protected area?	~~YES~~	NO
Existing offset area associated with a previous Environmental Authorisation?	~~YES~~	NO
Buffer area of the SKA?	~~YES~~	NO

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

A plan indicating the Critical Biodiversity Areas is included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

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

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:

This servitude was previously assessed by Webley and Halkett (2017), they recorded Stone Age artefact scatters of low significance. The proposed pipeline is currently located within an existing registered servitude, impacted on by the existing pipeline and there is a very low likelihood that any sites of significance will be impacted on by the proposed project as none have been encountered to date. See 'Letter of Recommendation for Exemption of a Heritage Impact Assessment (HIA) for the Pella Bulk Water Pipeline Project, Northern Cape' in Appendix D.

Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)? If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.	~~YES~~	NO

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:

Close to 55% of the working age population are employed. The average annual income was R29 400 per household in 2011, but 34% earned R20 000 or less. The annual income for individuals was R15 000, with 41% earning between R10 000 and R20 000 per annum. Around 80% of BMM's employees are from the Northern Cape, including 60% from the Namakwa district (mainly Khâi-Ma and Nama Khoi municipal areas).

Economic profile of local municipality:

The Project is situated in the Khâi-Ma Local Municipality, which is one of six local municipalities within the Namakwa District Municipality.

The Khâi-Ma Municipality had a population of 12 333 people in 2016. Population density is around one person per square km, with the majority of the population living in the rural areas (4 035 people). Aggeneys has a population of 2 053 people (666 households) and Pofadder 2 919 people (733 households).

More than 71% of the population falls within the 15-64 age cohort, while 22.2% are under 15 years old. About 6% of the population is older than 64 years. The population growth rate in 2016 was 0.21% per year. The current growth rate is estimated to be 0.83%. The dependency ratio is 39.6 per 100 people within the 15-64 age cohort. The median age was 28 years in 2011.

There are 4 079 households in the Khâi-Ma municipal area, with an average household size of three persons. Almost 34% of households are female-headed households. More than 92% of households live in formal dwellings, while 6.4% live in informal dwellings.

The language most spoken at home is Afrikaans (95%), and 75% of the population is considered "Coloured." The poverty headcount was 5.9% in 2016.

The information was mainly sourced from the 2011 Census Survey, the 2016 StatsSA Community Survey, the Khâi-Ma IDP review (2019), Media Monitoring Africa (2018) (via Wazimap) and the Municipalities of South Africa website (municipalities.co.za)[4].

Level of education:

Almost 3% of the population has no schooling, 22.2% has Matric and 5.2% has higher education.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 600 million	
What is the expected yearly income that will be generated by or as a result of the activity?	R 60 million	
Will the activity contribute to service infrastructure?	YES	~~NO~~
Is the activity a public amenity?	YES	~~NO~~
How many new employment opportunities will be created in the development and construction phase of the activity/ies?	250 people	
What is the expected value of the employment opportunities during the development and construction phase?	R3.5 million	
What percentage of this will accrue to previously disadvantaged individuals?	100%	

[4] It was noted that various sources contain conflicting data, while data sources used ranged from 2001 to 2016. Most of the information in the IDP is outdated. For example, the role of mining and mining-related employment in the Khai Ma municipality is largely missing from the local municipal level data. Where possible, the 2016 Community Survey findings was given preference below.

How many permanent new employment opportunities will be created during the operational phase of the activity?	None – maintenance will be undertaken by existing employees
What is the expected current value of the employment opportunities during the first 10 years?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	100%

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 Sensitivity Map is also included in Appendix A.

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 project area falls across areas classified as CBA1, CBA2, and ESA (Biodiversity Study – Appendix D). The reason for these sites selection and assignment is based on their biodiversity characteristics, spatial configuration and requirement for meeting targets for both biodiversity patterns and ecological processes. The area surrounding the proposed bulk water pipeline has an overall high sensitivity. The project area intercepts a portion of the Haramoep and Black Mountain Mine Important Bird and Biodiversity Area (IBA) where, based on the South African Bird Atlas Project, Version 2 (SABAP2) database 149 bird species are expected to occur in the vicinity of the project area of which eight species are listed as species of conservation concern (SCC) either on a regional scale or international scale. In addition, 65 mammal species are expected of which seven are SCCs, 61 reptile species are expected and two are SCCs while 15 amphibian species with one SCC are expected.

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	90%	Predominantly bare soil with grasslands in patches.
Near Natural (includes areas with low to moderate level of alien invasive plants)	10%	Some prevalence of alien invasive species.
Degraded	0%	

(includes areas heavily invaded by alien plants)		
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	0%	

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.

The project area was superimposed on the terrestrial ecosystem threat status (Appendix A). As seen in this figure the area falls across two ecosystem which are listed as Endangered (EN) (directly adjacent to the Orange River) and Least Threatened (LT) (the rest of the pipeline route).

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

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

Biodiversity Desktop Assessment for the Pella Bulk Water Pipeline Project by The Biodiversity Company: Mr Andrew Husted, is included in Appendix D.

TERRESTRIAL ECOSYSTEM / VEGETATION

Bushmanland Arid Grassland

The Bushmanland Arid Grassland consists of irregular plains on a slightly sloping plateau. It is sparsely vegetated by grass species, mainly dominated by white grasses (*Stipagrostis* species). In places, low shrubs of *Salsola* change the vegetation structure. In years of abundant rainfall rich displays of annual herbs can be expected (Mucina & Rutherford, 2006).

Important Plant Taxa

Important plant taxa are those species that have a high abundance, are a frequent occurrence or are prominent in the landscape within a particular vegetation type (Mucina & Rutherford, 2006). The following species are important in the Bushmanland Arid Grassland ([W]Western and [E]Eastern regions of the unit).

Graminoids: *Aristida adscensionis*, *A. congesta*, *Enneapogon desvauxii*, *Eragrostis nindensis, Schmidtia kalahariensis*, *Stipagrostis ciliata*, *S. obtusa*, *Cenchrus ciliaris*, *Enneapogon scaber*, *Eragrostis annulata*[E], *E. porosa*[E], *E. procumbens*, *Panicum lanipes*[E], *Setaria verticillata*[E], *Sporobolus nervosus*, *Stipagrostis brevifolia*[W], *S. uniplumis*, *Tragus berteronianus*, *T. racemosus*[E].

Small Trees: *Acacia mellifera* subsp. *detinens*[E], *Boscia foetida* subsp. *foetida*.

Tall Shrubs: *Lycium cinereum*, *Rhigozum trichotomum*, *Cadaba aphylla*, *Parkinsonia africana*.

Low Shrubs: *Aptosimum spinescens* , *Hermannia spinosa* , *Pentzia spinescens* , *Aizoon asbestinum*[E], *A. schellenbergii*[E], *Aptosimum elongatum*, *A. lineare*[E], *A. marlothii*[E], *Barleria rigida*, *Berkheya annectens*, *Blepharis mitrata*, *Eriocephalus ambiguus*, *E. spinescens*, *Limeum aethiopicum*, *Lophiocarpus polystachyus*, *Monechma incanum*, *M. spartioides*, *Pentzia pinnatisecta*, *Phaeoptilum spinosum*[E], *Polygala seminuda*, *Pteronia leucoclada*, *P. mucronata*, *P. sordida*, *Rosenia humilis*, *Senecio niveus*, *Sericocoma avolans*, *Solanum capense*, *Talinum arnotii*[E], *Tetragonia arbuscula*, *Zygophyllum microphyllum*.

Succulent Shrubs: *Kleinia longiflora*, *Lycium bosciifolium*, *Salsola tuberculata*, *S. glabrescens*.

Herbs: *Acanthopsis hoffmannseggiana*, *Aizoon canariense*, *Amaranthus praetermissus*, *Barleria lichtensteiniana*[E], *Chamaesyce inaequilatera*, *Dicoma capensis*, *Indigastrum argyraeum*, *Lotononis platycarpa*, *Sesamum capense*, *Tribulus pterophorus*, *T. terrestris*, *Vahlia capensis*.

Succulent Herbs: *Gisekia pharnacioides*[E], *Psilocaulon coriarium*, *Trianthema parvifolia*.

Geophytic Herb: *Moraea venenata*.

Biogeographically Important Taxa

Succulent Herb: *Tridentea dwequensis*.

Endemic Taxa

Succulent Shrubs: *Dinteranthus pole-evansii*, *Larryleachia dinteri*, *L. marlothii*, *Ruschia kenhardtensis*.

Herbs: *Lotononis oligocephala*, *Nemesia maxii.*

Conservation Status of the Vegetation Type

According to Mucina and Rutherford (2006), this vegetation type is classified as Least Threatened. The national target for conservation protection for this vegetation type is 21%, with only small patches statutorily conserved in Augrabies Falls National Park and Goegab Nature Reserve. Very little of the area has been transformed. The risk of erosion in this vegetation type is very low (60%) and low (33%).

The Gamsberg Nature Reserve was proclaimed under the NEMPAA on 5 August 2019. The Gamsberg Nature Reserve forms part of the Black Mountain Mining (Pty) Ltd Gamsberg Biodiversity Offset

Agreement that was signed between Black Mountain Mining (Pty) Ltd and DENC on 26 October 2014. The Gamsberg Nature Reserve includes the following farms and farm Portions:

- The farm Achab 59,
- Portion 2 of the farms Rozynbosch 41
- REM of the Rozynbosch 41; and
- REM of the farm Vogelstruishoek 88.

The total surface area of the Gamsberg Nature Reserve covers an area of approximately 21 664,12 ha.

Plant Species of Conservation Concern

Based on the Plants of Southern Africa (BODATSA-POSA, 2016) database, 621 plant species are expected to occur in the project area. Of the 621-plant species, six species are listed as being SCCs (Table 2).

Table 2 Plant Species of Conservation Concern expected to occur in the project area (BODATSA-POSA, 2016)

Family	Taxon	Author	IUCN	Ecology	Habitat requirements
Aizoaceae	*Conophytum limpidum*	S.A.Hammer	NT	Indigenous; Endemic	It grows on quartz slopes and on sheer faces, usually half shaded.
Capparaceae	*Boscia albitrunca*	LC	Protected	Indigenous	Found in drier sandy soil
Fabaceae	*Crotalaria pearsonii*	Baker f.	VU	Indigenous; Endemic	Found along the Orange river
Apocynaceae	*Ectadium virgatum*	E.Mey.	NT	Indigenous	Grows in dry areas
Ebenaceae	*Euclea pseudebenus*	LC	Protected		Stony and sandy desert and semi-desert areas
Asteraceae	*Helichrysum marmarolepis*	S.Moore	NT	Indigenous; Endemic	Grows in Sandveld.
Aizoaceae	*Lithops dinteri subsp. frederici*	Schwantes	VU	Indigenous; Endemic	Grows in barren minerals terrains
Aizoaceae	*Lithops olivacea*	L.Bolus	VU	Indigenous; Endemic	Grows in quartz plains
Fabaceae	*Vachellia erioloba*	LC	Protected	Indigenous	Drier areas

Avifauna

Based on the South African Bird Atlas Project, Version 2 (SABAP2, 2019) database, 149 bird species are expected to occur in the vicinity of the project area. Of the expected bird species, nine (9) species are listed as species of conservation concern (SCC) either on a regional scale or international scale. The SCC include the following:

- Two (2) species that are listed as EN on a regional basis;
- Four (4) species that are listed as VU on a regional basis; and
- Three (3) species that are listed as NT on a regional basis.

Table 3 List of bird species of regional or global conservation importance that are expected to occur in the pendants mentioned above (SABAP2, 2019, SANBI, 2016; IUCN, 2017)

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Aquila verreauxii	Eagle, Verreaux's	VU	LC	Moderate
Calendulauda burra	Lark, Red	VU	VU	High
Cursorius rufus	Courser, Burchell's	VU	LC	High
Eupodotis vigorsii	Korhaan, Karoo	NT	LC	High
Falco biarmicus	Falcon, Lanner	VU	LC	High
Neotis ludwigii	Bustard, Ludwig's	EN	EN	High
Oxyura maccoa	Duck, Maccoa	NT	NT	Moderate
Polemaetus bellicosus	Eagle, Martial	EN	VU	High
Spizocorys sclateri	Lark, Sclaters	NT	NT	High

Mammals

The following SCC mammals have been identified as potentially being present in the vicinity of the project.

Table 4 List of mammal species of conservation concern that may occur in the project area as well as their global and regional conservation statuses (IUCN, 2017; SANBI, 2016)

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Aonyx capensis	Cape Clawless Otter	NT	NT	High
Eidolon helvum	African Straw-coloured Fruit Bat	LC	NT	Low
Felis nigripes	Black-footed Cat	VU	VU	High
Graphiurus rupicola	Stone Dormouse	NT	LC	High
Panthera pardus	Leopard	VU	VU	High
Parahyaena brunnea	Brown Hyaena	NT	NT	High
Parotomys littledalei	Littledale's Whistling Rat	NT	LC	High

Reptiles

Two (2) reptile SCC are expected to be present in the area (Table 5).

Table 5 Expected reptile SCC that may occur in the project area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Chersobius signatus	Speckled Dwarf Tortoise	EN	EN	High
Psammobates tentorius verroxii	Tent Tortoise	NT	NT	High

Amphibians

Fourteen (14) amphibian species are expected to occur in the project area, one amphibian SCCs could potentially be present in the project area (Table 6).

Table 6 Amphibian SCC expected in the project area

Species	Common Name	Conservation Status		Likelihood of Occurrence
		Regional (SANBI, 2016)	IUCN (2017)	
Strongylopus springbokensis	Namaqua Stream Frog	VU	LC	High

AQUATIC ECOSYSTEM

National Freshwater Ecosystem Priority Areas (NFEPA)

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database provides guidance on how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998). This directly applies to the National Water Act, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives[5].

The location of the Pella Bulk Water pipeline project falls predominantly within a sub-quaternary catchment along the D81F-03445 and D81G – 03731 Sub-Quaternary Reach's (Appendix A). The catchment is considered a River FEPA as well as a fish sanctuary for threatened species.

Status of sub-quaternary reach D81F-03445 and D81G – 03731

Desktop information for sub-quaternary reach (SQR's) was obtained from DWS, 2020. The D81F-03445 SQR is a 7th order stream which spans 42 km. The Present Ecological State (PES) category of the reach is classed as largely natural (Class B). The D81G – 03731 SQR is a 3rd order stream which spans 20.61 km. The PES category of the reach is classed as largely natural (Class B). The largely natural state of these reaches is due to impacts to instream habitat, wetland and riparian zone continuity, flow modifications and moderate potential impacts on physico-chemical conditions (water quality). Anthropogenic impacts identified within the Orange River sub-quaternary catchment include water abstraction, flow modification and alien invasive plant species. Anthropogenic impacts identified within the T_Goob se Laagte River sub-quaternary catchment include rural settlements, subsistence farming and exotic species. A summary of the PES of the SQR's is included in Table 3.

Table 3 Summary: of the PES of the SQRs associated with the Orange River reach (DWS, 2020)

SQR Importance and Sensitivity	Score
D81F-03445 (Orange River)	
Present Ecological Status	Largely Natural (class B)
Ecological Importance	High
Ecological Sensitivity	High
Default Ecological Category	B

[5] Nel JL, Murray KM, Maherry AM, Petersen CP, Roux DJ, Driver A, Hill L, Van Deventer H, Funke N, Swartz ER, Smith-Adao LB, Mbona N, Downsborough L and Nienaber S. 2011. Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. K5/1801.

D81G – 03731 (T_Goob se Laagte)	
Present Ecological Status	Largely Natural (class B)
Ecological Importance	Moderate
Ecological Sensitivity	Moderate
Default Ecological Category	C

Fieldwork was undertaken in January 2020 to identify all the watercourse crossings for the proposed bulk water pipeline. All pipeline crossings can be seen in Table 4 and Figure 4.

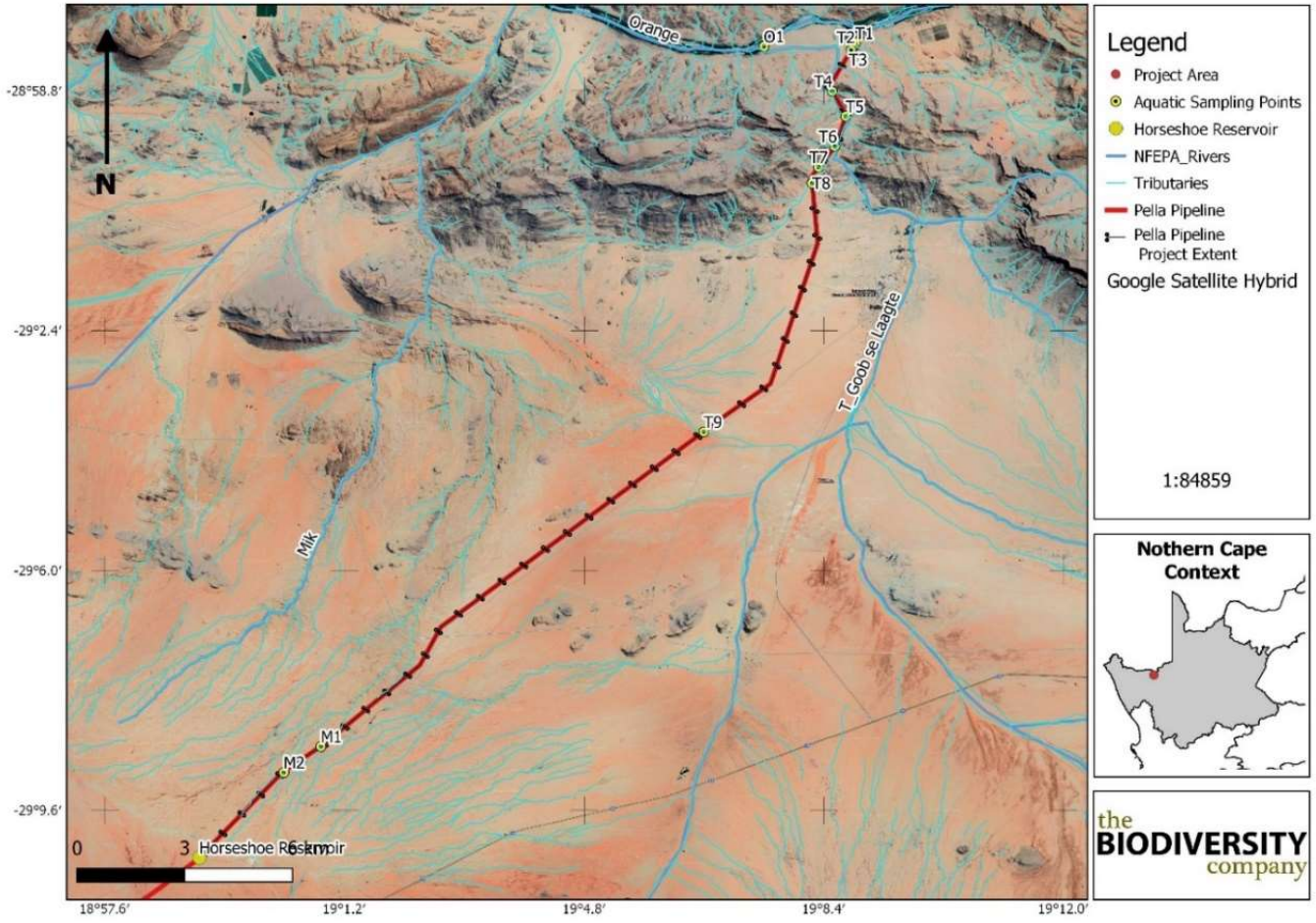

Figure 4 The location of the proposed pipeline and identified watercourse crossings (January 2020)

Table 4 Photos and co-ordinates for the sites sampled (January 2020)

	Upstream	Downstream
T4		
GPS	28°58'48.33"S 19° 8'31.45"E	
T5		
GPS	28°59'10.79"S 19° 8'43.47"E	
T6		
GPS	28°59'37.92"S 19° 8'33.63"E	

	Upstream	Downstream
T7		
GPS	28°59'56.58"S 19° 8'19.06"E	
T8		
GPS	29° 0'11.15"S 19° 8'13.32"E	
T9		
GPS	29° 3'55.07"S 19° 6'35.62"E	
M1		
GPS	29° 8'38.45"S 19° 0'50.44"E	

	Upstream	Downstream
M2		
GPS	29° 9'1.82"S 19° 0'17.04"E	

SECTION C: PUBLIC PARTICIPATION

An integrated public participation process was undertaken for the Pella Bulk Water Pipeline Project and the Gamsberg Smelter Project (subject to a separate EIA process).

1. ADVERTISEMENT AND NOTICE

Publication name	The Plattelander
Date published	20 September 2019

Publication name	The Gemsbok
Date published	20 September 2019

Site notice placement	Black Mountain Mine security office	Gamsberg Zinc Mine security office
	OK Bazaars in Aggeneys	Store in Pella
	Pella Clinic	Khâi-Ma Municipality, Pofadder
Date Placed	5 & 6 September 2019	

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

Proof of advertisements and site notices is included in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Please refer to Appendix E5 for the complete list of stakeholders.		

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.

Proof of distribution of the Background Information Document and initial project notification to stakeholders is included in Appendix E2.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Issues directly related to the Pella Bulk Water Pipeline Project have been included here. The public participation process was undertaken in conjunction with the Gamsberg Smelter Project (a separate Environmental Authorisation), the full list of comments received throughout the integrated public participation process is included in Appendix E3.

Summary of main issues raised by I&APs	Summary of response from EAP
Ina Basson o.b.o Pella NCMACA Branch Emailed letter, 28 October 2019 Pella residents and riparian farmers have discovered a few years back that the invader plants are sucking up Orange River water at a tremendous rate. It stands along the banks of the river all the way to Witbank ridge. We residents have also discovered that the Orange River is saturated and will not be able to supply a third pipeline, so we say no to a third pipeline. It will not happen in the next 10 years, not in our river and not on our land. As Pella community forum, in 2017 we asked Vedanta to remove the invasive plant by the roots from the riverbanks. To date nothing has happened so where do they think the river should get enough water for their pipeline? They should have listened to us and done as we said, then maybe the Orange River could have been saved. We are sorry, but we refuse the construction of a third pipeline, because we want to protect this little bit of water for our community and future generations. We will not allow any pipeline construction.	Black Mountain Mining (Pty) Ltd is proposing to upgrade the existing underground pipeline on behalf of Sedibeng Water. In order to do this the existing underground pipeline will be removed and a new one installed with a larger diameter in its place. There would, thus, still be only 2 pipelines within the servitude. This proposed pipeline upgrade will be undertaken as a separate Basic Assessment process and will have the relevant specialist study done to inform the project.
S.A.C Hockaday Emailed registration form; 1 November 2019 I would like to know the measures taken to ensure water conservation.	The design of the smelter has looked at minimising water consumption against the benchmark of existing zinc smelters with similar capacity around the world and has been designed to include an effluent recycling system with zero liquid discharge. Black Mountain Mining (Pty) Ltd will also not exceed the current water allowance.
Mr G. Visser	An additional 1 000 houses have already been approved for Aggeneys, of which 200 have

Summary of main issues raised by I&APs	Summary of response from EAP
Farmers Union Meeting, 4 December 2019 In the future do you expect the mines water use to increase? Aggeneys will also require additional water in the future?	currently been built. The 22 ML/day water pumped from the Orange River every day already takes into consideration the additional water requirements for Aggeneys, Pella and Pofadder.
Mr G. Visser Farmers Union Meeting, 4 December 2019 How much water do you expect to use in the next five years if the smelter does materialise?	The smelter will use approximately 9 ML/day. BMM has made provision for an additional 4 ML/day for Aggeneys and 1 ML/day for Pofadder. Currently Pofadder uses 1 ML/day, so the provision for Pofadder has been doubled to 2 ML/day. Pella uses between 2-3 ML/day and we have added 0.5 ML/day. The total water consumption with the operational smelter would thus be approximately 42 – 43 ML/day.
Mr G. Visser Farmers Union Meeting, 4 December 2019 I am not sure if you are aware, but should Gamsberg destroy the environment, Gamsberg is required to then provide the farmers with water. Where would that water come from for all the farmers? I think that the water use is at the top of what is available. If you put all these things together then you need to start applying for additional licences if the water is not enough, but then you can get to the point where there is no water available. Then what will the mine do? The whole system is being pushed to the maximum provision of water, but it gets forgotten that we also need to get water, so that's why I want to have this discussion so we can determine the capacity, what is available and what will the mine do if we lose our water. Have you made the calculations to determine the quantity of water required for the farmers if water runs out? That sum needs to be part of your flow diagram.	The water would have to come from the Orange River. It is the only source of water we have. There are specialist studies that are being undertaken to determine water availability including ground and surface water studies. The provision of water to farmers may not be required if the mine's activities do not affect their access to water. However, as a precaution Black Mountain Mining (Pty) Ltd will discuss the farmers water requirements and include in the calculations and flow diagrams.
L. Hugo Pella Public Meeting, 3 December 2019 If it was not for this project requiring water, would the pipeline still be upgraded?	If the project does not go ahead, Black Mountain Mining (Pty) Ltd would not be able to upgrade the pipeline.
J. Trichard Pella Public Meeting, 3 December 2019 This is now the third pipeline you want to build. The first two pipelines were not built on BMM	Black Mountain Mining (Pty) Ltd does understand the sensitivity surrounding the servitude. The pipeline will not proceed without the required approvals. The whole approval process is based within the servitude. The pipelines were constructed on behalf of

Summary of main issues raised by I&APs	Summary of response from EAP
land. They were built on our land. For the first two pipelines we got nothing. No money. For the third pipeline, what will we get?	Sedibeng. In 1978 the government registered the servitude over the farms Aroams, Springput, Klein Pella, Aggeneys and a portion of Blomhoek. When building a powerline or pipeline, the activity must be registered within the servitude. That servitude has certain rights, for example, this servitude belongs to Sedibeng. Sedibeng is thus allowed to do certain things within that servitude. The owner of the ground can also do things on the servitude. There are rules in place for this. If you are looking for the servitude proclamation, it is available at the surveyor general offices and includes all the rules of what people may do in that servitude. In the case of Sedibeng, they may build pipelines and dams within the servitude, as well as have unrestricted access to the servitude.
Mrs A. Kriel. Pofadder Public Meeting, 4 December 2019 We are struggling a lot with water. The dams are not full. With this upgrade will there be an impact on water quality or supply? Will water supply be interrupted?	There are currently two water pipelines. There is a connection point that runs from the pipeline to the Pofadder dam and town. These pipelines are the responsibility of Sedibeng Water. Upgrades will take place; however, the dams will be made full before any upgrades take place. With good management and planning we anticipate that water will be available for domestic use.

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.

The current integrated CRR is included in Appendix E3. This has been updated to include comments received during the public review of the Draft Basic Assessment Report for submission to the Competent Authority.

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

Please refer to Appendix E5 for the complete list of stakeholders.

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.

Proof of notification of the relevant Authorities and Organs of State is included in Appendix E4.

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.

The list of registered I&AP's is included in Appendix E5.

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

Public scoping meetings were held from 2 December 2019 to 5 December 2019 in order to present the Pella Bulk Water Pipeline and the Gamsberg Smelter Project to the I&APs. Meeting minutes and the presentations are included in Appendix E. The following public meetings were held:

- Aggeneys North Recreation Club, Aggeneys, 8893
    - Date: 2 December 2019
    - Time: 16:00 to 18:00
- Pella Community Hall, 129 Katedraal Str. Pella, 8892
    - Date: 3 December 2019
    - Time: 10:00 to 12:00
- Pofadder Community Hall, Corner of Voortrekker and Skool Street, Pofadder, 8890
    - Date: 4 December 2019
    - Time: 14:00 to 16:00
- Pofadder Farmers Union Hall, Pofadder
    - Date: 4 December 2019
    - Time: 17:00 to 18:30
- Namakwa FM Radio Interview

- Date: 5 December 2019
- Time: 08:00 to 08:30

The minutes of all public meetings held are included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

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

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

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

The full Impact Assessment is included in Appendix F. Table 5 (construction phase) and Table 6 (operations phase) summarise the identified impacts and their rating before and after mitigation.

The decommissioning impacts of the pipeline have been assessed to be the same as for the construction phase, and have thus not been repeated in the table below.

Table 5 Summary of construction phase impacts identified and their pre and post mitigation rating

Impact	Potential Impact	Impact Rating Pre-Mitigation	Impact Rating Post-Mitigation
Air Quality	Impact on ambient air quality	Low	Very Low
Noise	Impact on ambient noise	Low	Very Low
Heritage	Loss of heritage resources.	Very Low	Insignificant
Aquatic Habitat	Impacts on downstream aquatic habitat due to construction related activities.	Low	Very Low
Downstream Water Quality	Impacts on downstream water quality due to construction related activities.	Very Low	Insignificant
Terrestrial Habitat	Impacts on terrestrial habitat due to construction related activities.	High	Low
Fauna	Impacts on fauna due to construction related activities.	Low	Very Low
Traffic	Impacts on traffic volumes due to construction related activities.	Medium	Low
Socio-Economic	Impacts on local employment due to construction related activities.	Very Low (+ve)	Low (+ve)
Socio-Economic	Social ills due to population influx.	Very Low	Low

Table 6 Summary of operations phase impacts identified and their pre and post mitigation rating

Identified Impact	Potential Impact	Impact Rating Pre-Mitigation	Impact Rating Post-Mitigation
Air Quality	Impact on ambient air quality due to dust and other emissions.	Insignificant	N/A
Noise	Impact on ambient noise due to operational activities.	Low	Very Low
Aquatic Habitat	Impact on downstream aquatic habitat due to ongoing rehabilitation.	Low	Very Low
Downstream Water Quality	Impact on downstream water quality due to operational activities	Low	Very Low
Terrestrial Habitat	Impact on terrestrial habitat due to ongoing rehabilitation.	Insignificant	N/A
Fauna	Impact on fauna due to maintenance activities.	Insignificant	N/A
Traffic	Impact on traffic volumes due to maintenance activities.	Insignificant	N/A
Socio-Economic	Impacts on local employment due to operational activities.	Insignificant	N/A

Cumulative Impacts

The cumulative impacts of the pipeline project as a result of the direct impacts of the pipeline along with other developments in the area (most notably the Gamsberg Smelter Project) have been assessed to be of low significance. This is primarily due to the remote nature of the pipeline servitude and the limited overlap of the direct area of influence of the Gamsberg Smelter Project. The most significant positive cumulative impact of the pipeline project combined with the Gamsberg Smelter Project is the potential social benefits (direct and indirect job opportunities).

Negative cumulative impacts include the impact of traffic and potential cumulative impacts on the sensitive biodiversity in the region. Traffic generated by the pipeline project and the Gamsberg Smelter Project may have some cumulative impact on the N14, however, there are no further cumulative impacts expected on the secondary unpaved roads, as it is unlikely that that there would be an overlap in the use of these roads.

The potential for cumulative impacts on biodiversity in the wider Aggeneys area is a concern given the other planned developments that are taking place in this area or which may be attracted to the proposed Namakwa Special Economic Zone (SEZ). This includes both the expansion of the Gamsberg Zinc Mine (already authorised) which has a total footprint of approximately 1 400 ha as well as increasing renewable energy projects planned for the wider area. The Northern Cape Department of Economic Development and Tourism, in conjunction with the national Department of Trade and industry (DTI), is in the process of finalising submission documents for the declaration of the Namakwa SEZ to be established in the Aggeneys region of the Namakwa District (https://www.globalafricanetwork.com/investment-projects/catalyst-to-economic-growth-in-northern-cape-for-south-africa/, 12 June 2020). The anchor investor of the SEZ would be the Gamsberg Zinc Mine and the Gamsberg Smelter Project. Additional area for the development of the above-mentioned industries in close proximity to the Gamsberg Zinc Mine and the Gamsberg Smelter

Project is likely to be required which would result in additional pressure on the CBAs and their important biodiversity features in the area.

An estimated 9 000 ha of renewable energy projects are also planned in the wider area, although it is uncertain how many would be constructed. It can be expected that approximately 2 000 ha of additional habitat loss may be affected by renewable projects. The renewable energy projects are largely concentrated within the open plains habitat of the Bushmanland arid grassland vegetation type, which is a widespread habitat of low general diversity. The major corridors of the area, such as the Koa River valley south of the site and the inselberg mountain chains, which includes the current area around Gamsberg Inselberg, would not be impacted by renewable energy development but have been targeted by mining, with the Gamsberg Zinc Mine and Black Mountain Mines being the primary footprint areas.

The contribution of the pipeline to the cumulative impacts in the area is, however, considered to be minor and therefore no additional mitigation measures, over and above those recommended for the direct impact of the pipeline project, have been recommended.

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)

As per Table 5 the impacts that have been identified for the construction phase are largely LOW and can be reduced to either VERY LOW or INSIGNIFICANT with the implementation of mitigation measures. There are, however, two impacts which have been rated as MEDIUM and thus specific attention needs to be focussed in these areas.

The impact of the construction phase on terrestrial habitat is rated as MEDIUM prior to mitigation largely due to the direct impact of clearing for the excavation of the existing underground pipeline which would require large areas for stockpiling of soils, and laydown areas for the decommissioned pipeline as well as new sections of the proposed pipeline. The implementation and adherence to mitigation measures as stipulated in the EMPr (Appendix G) would limit the impact of vegetation clearance and direct damage to within the servitude and the impact would then be assumed to be LOW.

Traffic volumes during the construction phase have also been assessed to be MEDIUM prior to mitigation largely due to the impact being at a regional scale. These impacts would only occur during the construction phase as once construction is complete there would be minimal vehicle numbers with only maintenance crews operating in the area.

Operational phase impacts (Table 6) have been rated as being either LOW or INSIGNIFICANT prior to mitigation with the only real impacts associated with poor rehabilitation practices and low level noise associated with the pumphouses. Provided rehabilitation is undertaken satisfactorily and maintenance of pumps and other equipment is undertaken potential impacts during the operational phase can be minimised.

~~**Alternative B**~~

~~**Alternative C**~~

No-go alternative (compulsory)

Should the proposed Pella Bulk Water Pipeline not be developed then Sedibeng Water would not be able to meet the growing demands from the surrounding towns and proposed industrial activities in the region (i.e. the proposed Gamsberg Smelter Project) as the capacity of the existing underground pipeline is not sufficient, despite having enough abstraction volume allocation. In addition, the poor integrity of the existing pipeline means that there are regular breaks in the pipeline with resultant leaks. As a consequence, the pipeline has to undergo regular maintenance with the associated shut down periods. The no-go option would therefore limit the potential for growth in the Khâi-Ma Local Municipal area. The No-go alternative is counter to national and municipal policies and is thus not the preferred alternative.

SECTION E. RECOMMENDATION OF PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the environmental assessment practitioner)?	YES	~~NO~~

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).

Not applicable.

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.

It is recommended that the Basic Assessment Application for the proposed Pella Bulk Water Pipeline should be approved for all activities described in this report. The mitigation measures discussed in this assessment and the EMPr (Appendix G) should be included as conditions in the Environmental Authorisation.

Is an EMPr attached?	YES	~~NO~~

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.

K de Courcy Hamilton

_____

NAME OF EAP

_____ __13/10/2020_____

SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information