the denc

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

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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:

- 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.
- 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
- 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.
- Where applicable **tick** the boxes that are applicable in the report.
- An incomplete report may be returned to the applicant for revision.
- 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.
- This report must be handed in at offices of the relevant competent authority as determined by each authority.
- No faxed or e-mailed reports will be accepted.
- The signature of the EAP on the report must be an original signature.
- The report must be compiled by an independent environmental assessment practitioner.
- 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.
- A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
- 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.		

PROPOSED UPGRADE OF THE KAMIESKROON SEWER OXIDATION PONDS, KAMIESBERG LOCAL MUNICIPALITY, NAMAKWA DISTRICT MUNICIPALITY, NORTHERN CAPE

- **ACTIVITY DESCRIPTION**

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

It's proposed that the existing oxidation ponds in Kamieskroon be upgraded and expanded.

The proposed upgrade of the Kamieskroon Waste Water Treatment Works (WWTW) includes the following:

- The existing oxidation ponds should be upgraded to meet the specifications of the Department of Water and Sanitation and be used as anaerobic, primary and secondary ponds. New in– and outlet structures should be constructed and the ponds must be lined with 2mm HDPE – Lining. The lining will ensure that the ponds are sealed off.
- The size of the existing anaerobic ponds is sufficient, minor upgrades are required along with the lining of the ponds.
- The size of the existing primary ponds is sufficient; however, the ponds need to be lined.
- Two of the secondary ponds must be combined to provide one larger pond to provide sufficient capacity. These ponds must also be lined.
- The construction of four new evaporation ponds connecting to the existing system with in- and outlet structures and lined with 2mm HDPE – linings and geomembranes will be required as part of the upgrade.
- The construction of security fences around the extension of the oxidation pond system and the evaporation ponds will be part of the work.

The site is located at the existing Kamieskroon Oxidation Ponds, located to the east of Kamieskroon, north of the N7.

Site Coordinates: 30°12'38.00"S17°55'13.00"E

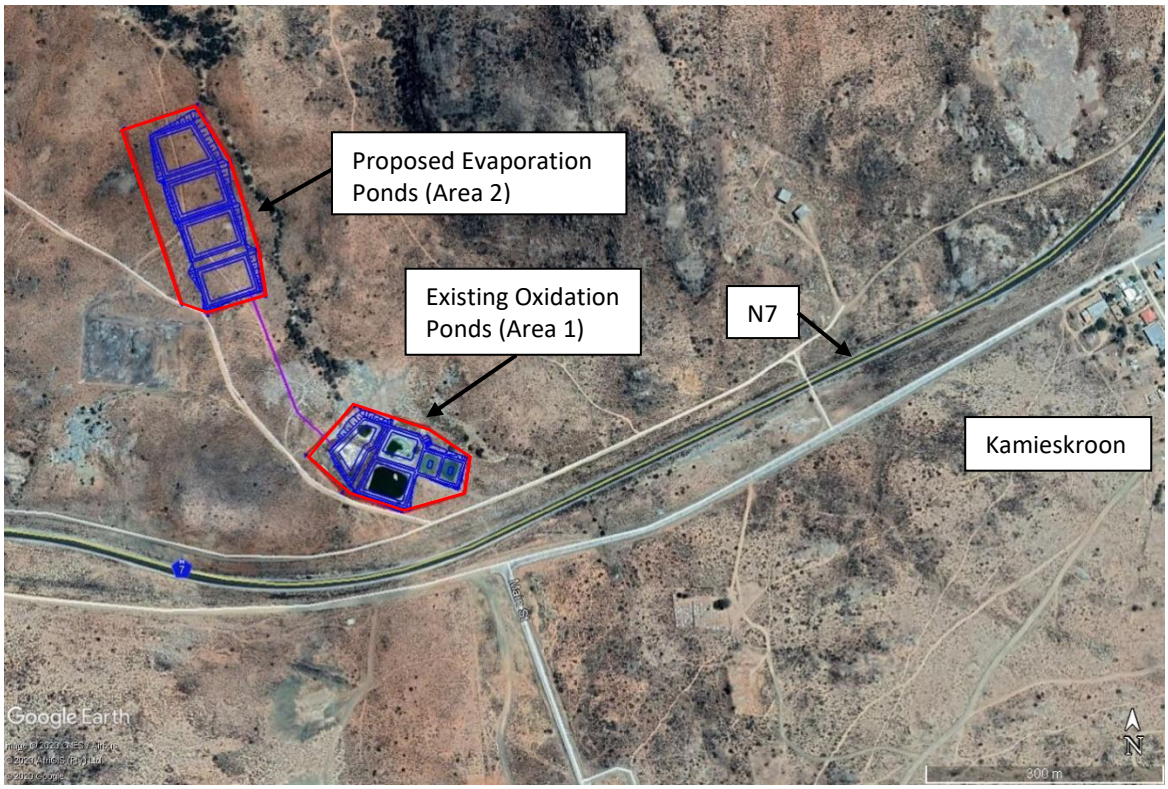

Figure 1: Google Earth Aerial view of the site.

The increasing demand for proper housing in Kamieskroon has led to an increased demand for water and sanitation services. Many families living on farms are also moving to the town where services and other facilities are available.

The oxidation ponds are not water-proofed and do not comply with the Department of Water and Sanitation (DWS) specifications.

The ponds overflows in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area. Many farmers downstream of the river are dependent on boreholes and wells to provide them with drinking water as well as water for their livestock.

The main objective of this project will be to construct a new oxidation pond system with HDPE Lining to stop any effluent water infiltrating into the groundwater system and to improve the health and hygiene conditions in the community.

The proposed development will also provide job opportunities for the community.

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

Listed activity as described in GN 324, 325 and 327	Description of project activity
GN 327 (Item 12): The development of; (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs; (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;.	The proposed development includes the development of new infrastructure which will exceed 100sqm, and is located less than 32m from a watercourse.
GN 327 (Item 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; (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; or (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies.	The proposed development is located adjacent to an existing watercourse (ephemeral stream). The watercourse may be infilled and/or excavated during construction.
GN 327 (Item 27): The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for; (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed expansion of the existing oxidation pond system is expected to be approximately 3ha.
GN 327 (Item 48): The **expansion** of; (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion occurs; (a) within a watercourse; (b) in front of a development setback; or	The proposed development includes the expansion of existing infrastructure will exceed 100sqm, and is located less than 32m from a watercourse.

(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	
GN 324 (Item 12): The **clearance of an area** of 300 square metres or more of **indigenous vegetation** except where such clearance of vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.	More than 300m^2 of vegetation will need to be cleared to construct the additional ponds and pipelines.
GN 324 (Item 14): The **development** of; (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 10 square metres; (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs; (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; Excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;	The proposed development includes the development of infrastructure will exceed 10sqm, and is located less than 32m from a watercourse.
GN 324 (Item 23): The **expansion** of; (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 10 square metres; (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such expansion occurs; (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; Excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;	The proposed development includes the expansion of existing infrastructure will exceed 10sqm, and is located less than 32m from a watercourse.

• 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

Site alternatives are limited, as it needs to be close to the existing Waste Water Treatment Works. According to the Botanical Impact Assessment (**Appendix D1**), there is no logical alternative site, and the property is already degraded to some degree.

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

In the case of linear activities:

Alternative:	**Latitude (S):**	**Longitude (E):**
Alternative S1 (preferred)		
• Starting point of the activity		
• Middle/Additional point of the activity		

• End point of the activity		
Alternative S2 (if any)		
• Starting point of the activity		
• Middle/Additional point of the activity		
• End point of the activity		

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.
In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

There are no feasible layout alternatives that were considered

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
There are no feasible alternative layouts considered that would mitigate any potential environmental impact		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

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)

Alternative 1 (preferred alternative)		
Alternative 2		

Alternative 3

e) No-go alternative

This would mean that no-development would take place and the proposed site will remain as is. No expansion and upgrade of the existing oxidation ponds will take place for the town of Kamieskroon.

Although this option would result in no significant potential negative environmental impacts, the positive environmental and socio-economic benefits from implementing the activity would not be achieved. It will also mean that the capacity of the oxidation ponds will not be expanded, which is required due to the increasing demand for water and sanitation services.

The ponds overflow in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area.

The existing ponds will also not be lined, which can lead to further groundwater contamination.

The no-go option would only have been recommended if it were found that the construction of the proposed development on this site or in this area might potentially cause substantial detrimental harm to the environment.

According to the Biodiversity Assessment (**Appendix D1**), the No-Go option is not likely to result in a "no-impact" scenario, as constant slow degradation is expected to continue as a result of urban activities and grazing in and around the site.

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

- **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 (preferred activity alternative)		approximately 3.2ha
Alternative A2 (if any)		m^2
Alternative A3 (if any)		m^2

or, for linear activities:

Alternative:		**Length of the activity:**
Alternative A1 (preferred activity alternative)		m
Alternative A2 (if any)		m
Alternative A3 (if any)		m

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

Alternative:		**Size of the site/servitude:**
Alternative A1 (preferred activity alternative)		m^2

Alternative A2 (if any)		m^2
Alternative A3 (if any)		m^2

- **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		N/A

Describe the type of access road planned:

No new access roads will be required.

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

- **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).

- **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.

- **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.

- **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.

- **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.

- **ACTIVITY MOTIVATION**

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

• **Is the activity permitted in terms of the property's existing land use rights?**	~~YES~~	NO	Please explain
The site is adjacent to the existing WWTW, on the same property.			
• **Will the activity be in line with the following?**			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The increasing demand for proper housing in Kamieskroon has led to an increased demand for water and sanitation services. Many families living on farms are also moving to the town where services and other facilities are available.			

The oxidation ponds are not water-proofed and do not comply with the Department of Water and Sanitation (DWS) specifications.

The ponds overflows in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area. Many farmers downstream of the river are dependent on boreholes and wells to provide them with drinking water as well as water for their livestock.

The main objective of this project will be to construct a new oxidation pond system with HDPE Lining to stop any effluent water infiltrating into the groundwater system and to improve the health and hygiene conditions in the community.

The proposed development will also provide job opportunities for the community.

(b) Urban edge / Edge of Built environment for the area	~~YES~~	NO	Please explain

The site is located outside the developed area of Kamieskroon.

(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 Municipality is the Applicant. The increasing demand for proper housing in Kamieskroon has led to an increased demand for water and sanitation services. Many families living on farms are also moving to the town where services and other facilities are available.

The oxidation ponds are not water-proofed and do not comply with the Department of Water and Sanitation (DWS) specifications.

The ponds overflows in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area. Many farmers downstream of the river are dependent on boreholes and wells to provide them with drinking water as well as water for their livestock.

The main objective of this project will be to construct a new oxidation pond system with HDPE Lining to stop any effluent water infiltrating into the groundwater system and to improve the health and hygiene conditions in the community.

The proposed development will also provide job opportunities for the community.

(d) Approved Structure Plan of the Municipality	YES	NO	Please explain

The Municipality is the Applicant. The increasing demand for proper housing in Kamieskroon has led to an increased demand for water and sanitation services. Many families living on farms are also moving to the town where services and other facilities are available.

The oxidation ponds are not water-proofed and do not comply with the Department of Water and Sanitation (DWS) specifications.

The ponds overflows in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area. Many farmers downstream

of the river are dependent on boreholes and wells to provide them with drinking water as well as water for their livestock. The main objective of this project will be to construct a new oxidation pond system with HDPE Lining to stop any effluent water infiltrating into the groundwater system and to improve the health and hygiene conditions in the community. The proposed development will also provide job opportunities for the community.			
(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
No EMF was identified			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
• **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
• **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 increasing demand for proper housing in Kamieskroon has led to an increased demand for water and sanitation services. Many families living on farms are also moving to the town where services and other facilities are available. The oxidation ponds are not water-proofed and do not comply with the Department of Water and Sanitation (DWS) specifications. The ponds overflows in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area. Many farmers downstream of the river are dependent on boreholes and wells to provide them with drinking water as well as water for their livestock. The main objective of this project will be to construct a new oxidation pond system with HDPE Lining to stop any effluent water infiltrating into the groundwater system and to improve the health and hygiene conditions in the community. The proposed development will also provide job opportunities for the community.			

• **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
The proposed project is to provide additional sanitation services for the community. The Municipality is the Applicant.			
• **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
The Applicant is the municipality			
• **Is this project part of a national programme to address an issue of national concern or importance?**	YES	~~NO~~	Please explain
Sufficient and functioning basic services, including water sanitation, is a national concern			
• **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 proposed location has been identified by the engineers as suitable for the proposed development. It is directly adjacent to the existing oxidation ponds. There are no significant negative environmental impacts that have been identified by the botanical or heritage specialists.			
• **Is the development the best practicable environmental option for this land/site?**	YES	NO	Please explain
The proposed development will result in the loss of indigenous vegetation over the site, however, the Namaqualand Klipkoppe Shrubland is considered least threatened (although it is also poorly protected) and the site slightly disturbed due to grazing of livestock. However, the proposed site does fall within any CBA). it is also unlikely that any significant archaeological resources will be impacted, similarly, the unfossiliferous nature of the bedrock means that no impacts are likely to significant fossil heritage.			
• **Will the benefits of the proposed land use/development outweigh the negative impacts of it?**	YES	~~NO~~	Please explain
No significant negative environmental impacts are expected by the proposed development and the benefits of better sanitation, sanitation capacity to the town of Kamieskroon will outweigh any negative impacts. The proposed upgrades will also ensure that there is no further infiltration of effluent water into the groundwater from the oxidation ponds.			

• **Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?**	~~YES~~	NO	Please explain
Unknown, but is hoped and expected that other wastewater treatment works in other towns with similar designs will be upgraded (and expanded if necessary) to ensure compliance with DWS requirements, and to prevent effluent contamination of underground and above ground water resources.			
• **Will any person's rights be negatively affected by the proposed activity/ies?**	YES	NO	Please explain
No person's rights are expected to be negatively affected by the proposed development. The activity is expected to have a general positive impact on the surrounding area.			
• **Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?**	~~YES~~	NO	Please explain
Unknown. The development is located outside the built up/urban area of Kamieskroon.			
• **Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?**	YES	~~NO~~	Please explain
The proposed bulk water supply system in Kamieskroon is considered to contribute to SIPS 18: **SIP 18: Water and sanitation infrastructure** A 10-year plan to address the estimated backlog of adequate water to supply 1.4m households and 2.1m households to basic sanitation.			
• **What will the benefits be to society in general and to the local communities?**			Please explain
The project will provide job opportunities during the construction and the operational phase. This development has the potential to provide an economic injection in the local community, by means of creating employment opportunities. The proposed development will increase the income generated by the study area, which is currently non-existent. Most importantly, it will provide additional sanitation capacity to the town of Kamieskroon, and improve the health and hygiene of the residents. It will prevent contamination of the ground water resources which is especially important for downstream users, who rely on boreholes for drinking water and for livestock.			
• **Any other need and desirability considerations related to the proposed activity?**			Please explain
N/A			
• **How does the project fit into the National Development Plan for 2030?**			Please explain
N/A			
• **Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.**			
The general objectives of Integrated Environmental Management have been taken into account through the following:			

- The actual and potential impacts of the activity on the environment, socio-economic conditions and cultural heritage have been identified, predicted and evaluated, as well as the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impact, maximizing benefits and promoting compliance with the principles of environmental management – *please refer to Section D below*.
- The effects of the activity on the environment have been considered before actions taken in connection with them – *alternatives have been considered and investigated (please refer to Section A below).*
- Adequate and appropriate opportunity for public participation was ensured through the public participation process – *please refer to Section C for the public participation information, including the list of identified Interested and Affected parties, as well as the methods for identifying and informing I&APs of the application and proposed activity*.
- The environmental attributes have been considered in the management and decision-making of the activity – *an EMP has been included (**Appendix G**) with the proposed activity and must adhere to the requirements of all applicable state Authorities.*

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

The principles of environmental management as set out in section 2 of NEMA have been taken into account. The principles pertinent to this activity include:

- People and their needs have been placed at the forefront while serving their physical, psychological, developmental, cultural and social interests – *the proposed activity will have a beneficial impact on people, as it will provide much needed additional housing opportunities.*
- Development must be socially, environmentally and economically sustainable. Where disturbance of ecosystems, loss of biodiversity, pollution and degradation, and landscapes and sites that constitute the nation's cultural heritage cannot be avoided, are minimised and remedied.
- Where waste cannot be avoided, it is minimised and remedied through the implementation and adherence of EMP.
- The use of non-renewable natural resources is responsible and equitable – *no exploitation of non-renewable natural resources occurs with the proposed activity.*
- The negative impacts on the environment and on people's environmental rights have been anticipated and prevented, and where they cannot be prevented, are minimised and remedied - *refer to Section F below*.
- The interests, needs and values of all interested and affected parties have been taken into account in any decisions through the Public Participation Process – *please refer to Section C for the public participation information.*
- The social, economic and environmental impacts of the activity have been considered, assessed and evaluated, including the disadvantages and benefits – *refer to Section B below.*
- The effects of decisions on all aspects of the environment and all people in the environment have been taken into account, by pursuing what is considered the best practicable environmental option – *the proposed activity is expected to have minimal/negligible environmental impacts, especially after mitigation measures as described under Section D and E and in the EMP are implemented.*

• 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 Water Act	Water Use Licence	Department of Water and Sanitation	Not yet
Northern Cape Nature Conservation Act, Act 9 of 2009	NCNCA Protected plant species located on the site	Department of Environment and Nature Conservation (DENC)	Not yet

• 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? Unknown		m^3

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

The general solid waste generated during construction will be consolidated on site during construction and disposed of at the nearest approved municipal landfill site.

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

The general solid waste generated during construction will be consolidated on site during construction and disposed of at the nearest approved municipal landfill site.

Will the activity produce solid waste during its operational phase?	YES	~~NO~~
If YES, what estimated quantity will be produced per month?		m^3
How will the solid waste be disposed of (describe)?		
No solid waste is expected to be generated during the operational phase.		
If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.		
No solid waste is expected to be generated during the operational phase.		
Where will the solid waste be disposed of if it does not feed into a municipal waste stream (describe)?		
N/A		

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

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

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

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	~~YES~~	NO
If YES, what estimated quantity will be produced per month?	N/A	
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. N/A. The proposed activity is for the treatment of effluent		

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:

Wastewater/effluent will be stored in 1.5ha evaporation ponds

c) Emissions into the atmosphere

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

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA? A Waste management is not required in our opinion, as the activity will be treating effluent/sewage, which is excluded in terms of the NEM:WA List of Waste management Activities (as amended 24 July 2015).	~~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?	~~YES~~	NO
Describe the noise in terms of type and level:		
The activity is not expected to produce significant noise that would be a nuisance to any nearby residents.		

- **WATER USE**

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

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

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

- **ENERGY EFFICIENCY**

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

N/A

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

N/A

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

Property description/physical address:	**Province**	Northern Cape
	District Municipality	Namakwa District Municipality
	Local Municipality	Kamiesberg Municipality
	Ward Number(s)	
	Farm name and number	RE/2
	Portion number	
	SG Code	C05300060000000200000
	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:	Community
	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~~

- **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):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

Alternative S3 (if any):

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5

- **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		2.8 Dune	
2.3 Side slope of hill/~~mountain~~	X	2.6 Plain		2.9 Seafront	
2.10 At sea					

- **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.

- **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[E]~~	~~Gardens~~
~~Sport field~~	~~Cultivated land~~	~~Paved surface~~	~~Building or other structure~~	Bare soil

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

- **SURFACE WATER**

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

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

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

Although not indicated on any desktop assessments, including the SANBI BGIS NFEPA overlay, there is a watercourse (ephemeral stream) adjacent to the site. According to the Freshwater Assessment (**Appendix D2**), this drainage line flows into the Haas River, a tributary of the Buffels River. The proposed Kamieskroon WWTW is located approximately 12.5km away from the confluence, and approximately 100m from the confluence of the Haas River and the adjacent ephemeral stream.

According to the Freshwater Assessment (**Appendix D2**), the drainage lines that runs past the site rises on the streets of Kamieskroon and then moves through the culverts underneath the N7 trunk road. The bed and riparian zone seem to be rather natural from the culvert to a point below the WWTW, where a pile of broken rock and rubble was dumped. From there it widens somewhat to the junction with the Haas River. Originally, the drainage line must have started on the mountain slopes to the west of the town, but that flow is not visible anymore, as it has been disturbed by the development of the town. The flow underneath the N7 is no longer apparent, as it is blocked. Instead the drainage line stretches along the west side of the N7, where it simply stops on the incline. Higher up the drainage line, the riparian vegetation is no different from the surrounding veld, succulent Karoo with *Euphorbia* species, low, drought stressed bush. The riparian zone looks intact, with a mature stand of thorn trees *Vachellia karoo*, as is apparent all along the Buffels River and its tributaries. The area is heavily grazed by domestic goats.

In terms of Habitat Integrity, the drainage line scores a C (*Moderately modified. A loss and change of the natural habitat and biota, but the ecosystem function is predominantly unchanged*), despite major impacts. The part below the N7 is still ecologically functional, but the part upstream on the N7 has been disrupted.

Much of the Haas River's banks have been altered into agricultural land, small patches all along the river, wherever the land is even and flat enough for development among the mountainous terrain. These are mainly wheat fields that are only vegetated during winter and mostly barren during summer. Where the banks are left undeveloped, it is covered with a mature stand of sweet thorn trees. Water abstraction is by means of boreholes on farms along the length of the river. The river banks are heavily grazed by farm animals.

In terms of Habitat Integrity, the Haas River scores a C (*Moderately modified. A loss and change of the natural habitat and biota, but the ecosystem function is predominantly unchanged*), for both the instream and riparian habitat. The Haas River has been impacted, but much of its ecosystem functioning is still intact.

It is important to note that the upgrade of the WWTW is not about to change any of this. The impact could rather be positive, as there would no longer be overflows from the old works.

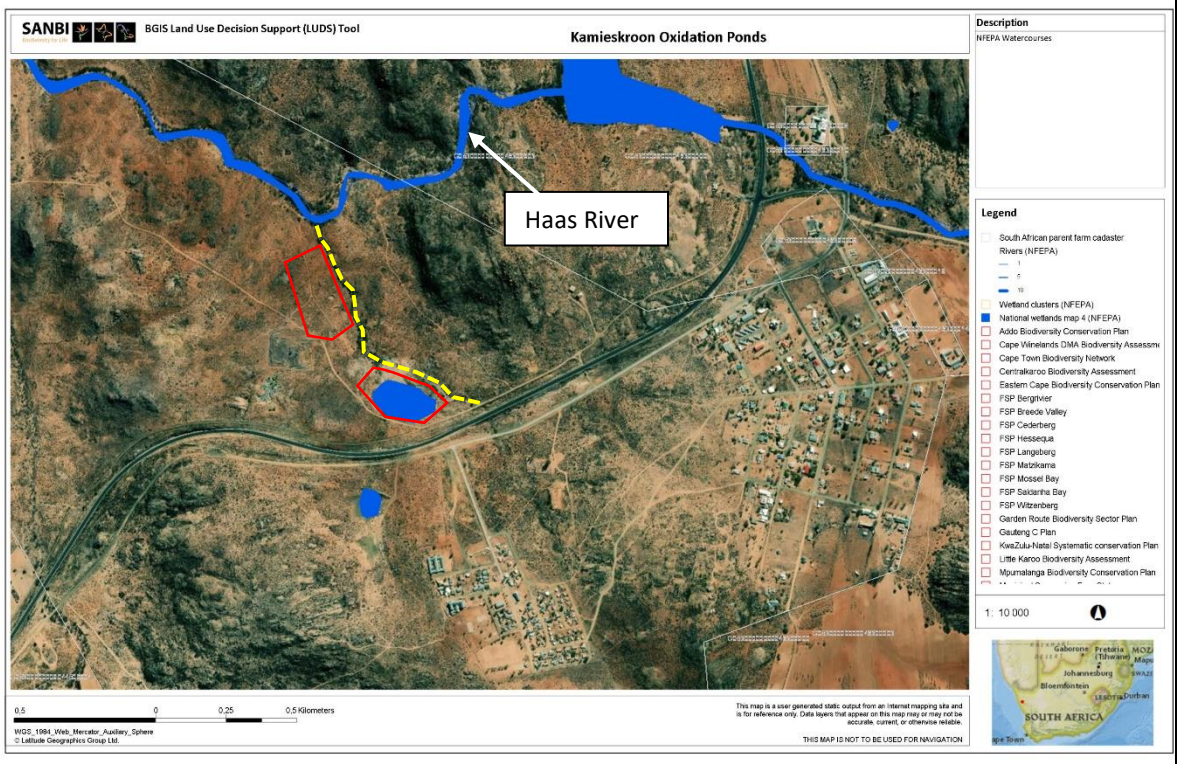

Figure 2: SANBI BGIS image of the site, showing the nearest watercourses to the site (red polygon). The yellow dashed line is an ephemeral stream/drainage line that runs adjacent to the site, which is not indicated on the NFEPA overlay.

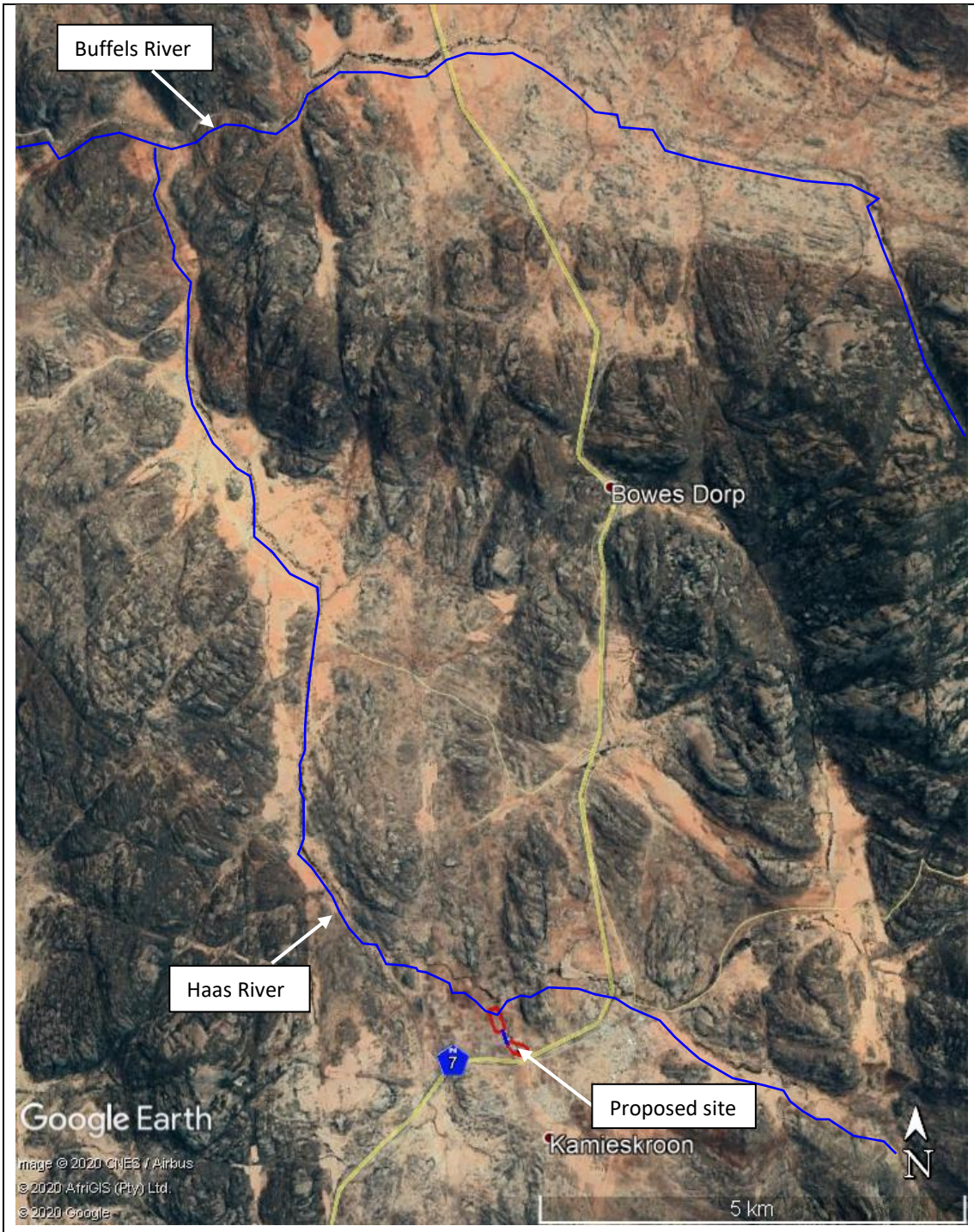

Figure 3: Google Earth image of the showing the main watercourses in the area.

• LAND USE CHARACTER OF SURROUNDING AREA

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

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

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:

No impacts are expected.

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:

No impacts are expected.

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

N/A

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

Critical Biodiversity Area (as per provincial conservation plan)	~~YES~~	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

- **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	

According to the Archaeological Impact Assessment (**Appendix D3**), very little archaeological work has taken place in Kamieskroon. Only two studies have previously been done, where extremely low numbers of archaeological resources were recorded inside the urban edge (Lavin & Kaplan 2018; Kaplan 2020). In more recent historic times, the interior of Namaqualand was occupied by the Little Namaqua, a Khoekhoen pastoralist group who herded sheep and cattle and lived in temporary encampments of mat houses. They are known to have moved seasonally with their livestock and historical reports indicate that they may have followed a transhumance cycle between the Kamiesberg in the summer months and the Sandveld in the winter months that may also have included the area around Kamieskroon (Webley 1992).

Since the Little Namaqua had no clearly defined territorial boundaries, it was easy for the colonial Trekboers to settle in the area. The earliest loan farms were granted after 1750 and the Little Namaqua eventually retreated to so-called “reserves” such as Leliefontein (near Kamieskroon), Steinkopf and Concordia (Webley 1992).

According to the Archaeological Impact Assessment (**Appendix D3**), one quartz chunk and one broken Middle Stone Age flake was recorded during the study. The very small number and isolated context, in which they were found, mean that the archaeological remains have been rated as having *low* (Grade IIIC) significance.

No graves, or typical grave features such as stone cairns were encountered during the study.

The field study identified no significant impacts to pre-colonial archaeological heritage that will need to be mitigated prior to proposed construction activities commencing.

The overall impact significance of the proposed upgrade of the Kamieskroon Oxidation Ponds (Re Erf 2) on archaeological heritage is assessed as LOW and therefore there are no objections, to the proposed activities proceeding.

According to the Palaeontological Impact Assessment (**Appendix D4**), the ancient Precambrian basement rocks (highly metamorphosed sediments, igneous intrusions) of the **Namaqua-Natal Metamorphic Province** underlying the sewerage infrastructure study area near Kamieskroon at depth are entirely unfossiliferous and are therefore not of palaeontological heritage significance (Almond & Pether 2008). They are therefore not considered further here.

The overall palaeontological sensitivity of the porous and permiable, sandy to gravelly, and locally calcretised, **Late Caenozoic superficial deposits** in the Namaqualand region is generally low. The predominantly sandy superficial deposits in the study area, including the alluvial and aeolian sands and gravels, are unlikely to contain substantial fossil remains. Fossil land snails have been recorded from yellowish to reddish terrestrial sands and overlying calcretes in the adjoining Springbok sheet area (Marais *et al.,* 2001). Among the limited range of other fossils that might be encountered within Late Caenozoic surface sediments in the study area are calcretized rhizoliths (root casts), termitaria and other burrows, freshwater molluscs, ostrich egg shells, sparse bones, teeth and horn cores of mammals, and tortoise remains.

Finer-grained river, stream and pan sediments might contain fossils of fish, frogs, molluscs, crustaceans (crabs, ostracods, phyllopods such as conchostracans) as well as microfossils such as diatoms, palynomorphs and macroplant remains (*e.g.* wood, peats). Such fossil remains are likely to occur only sporadically. It is noted that skeletal remains of a Pliocene three-toed horse, *Hipparion*, have been recorded from a well at Areb, 65 km east of Springbok, probably in association with buried Late Tertiary river deposits comparable to those in the major Koa River palaeochannel in Bushmanland further the northeast.

The overall palaeontological impact significance of the proposed sewerage infrastructure project near Kamieskroon, Namaqualand, in terms of palaeontological heritage is considered to be VERY LOW because:

- The Precambrian metasedimentary and igneous basement rocks underlying this region at depth are entirely unfossiliferous;
- The overlying Late Caenozoic superficial deposits are generally of low palaeosensitivity;
- The project footprint is small, and is in part already highly disturbed by pre-existing sewerage infrastructure, tracks *etc*;
- The small water course just outside the eastern edge of the project area is unlikely to be associated with substantial deposits of consolidated, potentially-fossiliferous older alluvium.

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:

Will any building or structure older than 60 years be affected in any way?	~~YES~~	NO
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	~~NO~~
If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority. Please note that the site is larger than 5 000m^2 and the character of the site will change. The project is therefore subject to Section 38(1) of the NHRA. The project has been registered with SAHRA through SAHRIS.		

• SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

According to the Kamiesberg Municipality IDP 2017-2022, unemployment and poverty affects a large number of people within the municipal area. According to the Census 2011, 2205 people are employed, 981 are unemployed, 723 are classified as discourage work-seekers and 2535 are not economically active. Kamiesberg Local Municipality has three main economic sectors: livestock grazing, mining and tourism. The main economic activity in the Rural areas are Agriculture.

Economic profile of local municipality:

According to the Kamiesberg Municipality IDP 2017-2022, Kamiesberg Local Municipality has three main economic sectors: livestock grazing, mining and tourism. The main economic activity in the Rural areas is Agriculture.

The municipality is dependent on the following economic activities -Quantec Data 2009:

Industry	Northern Cape	Namakwa DM	Kamiesberg
Agriculture, forestry and fishing	16%	12.6%	10%
Mining and quarrying	8.2%	16.3%	21.5%
Manufacturing	3.8%	2.8%	3.3%
Electricity, gas & Water	0.6%	0.4%	0.1%
Construction	4.6%	5.7%	5.5%
Wholesale & Retail trade, catering & accommodation	16.1%	14.6%	14.3%
Transport, storage and communication	3.2%	3.3%	1.5%
Finance, insurance, real estate and business services	9.2%	8.1%	6.2%
Community, social and personal services	15.5%	17.7%	18.1%
General Government	22.3%	18.6%	19.4%

Level of education:

Unknown

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 20 500 000	
What is the expected yearly income that will be generated by or as a result of the activity?	N/A	
Will the activity contribute to service infrastructure?	YES	~~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?	30	
What is the expected value of the employment opportunities during the development and construction phase?	R1 000 000 during construction phase	
What percentage of this will accrue to previously disadvantaged individuals?	100%	

How many permanent new employment opportunities will be created during the operational phase of the activity?	1
What is the expected current value of the employment opportunities during the first 10 years?	R2 000 000
What percentage of this will accrue to previously disadvantaged individuals?	100%

- **BIODIVERSITY**

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

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

Systematic Biodiversity Planning Category				**If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan**
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The site is located within a CBA identified on SANBI BGIS (refer to Figure 4 below and section 4.3 of the Botanical Assessment (**Appendix D1**).

According to the Botanical Assessment (**Appendix D1**), the Namakwa District Biodiversity Sector Plan (NDBSP) 2008, gives both aquatic and terrestrial Critical Biodiversity Areas (CBAs) and ecological support areas for the Namakwa District Municipality. According to the Northern Cape CBA map, the proposed development falls within a terrestrial CBA. However, there is no alternative site on the property or its immediate vicinity that is not located within the CBA.

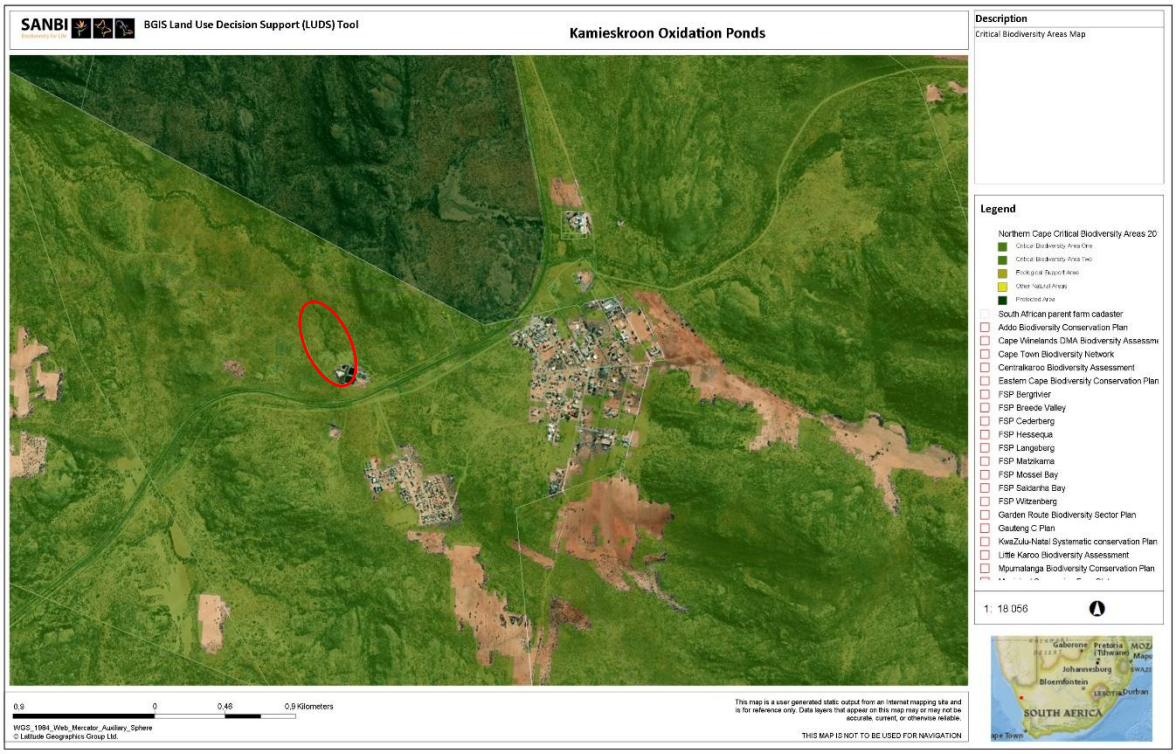

Figure 4: The Northern Cape Critical Biodiversity Areas Map indicating the location of the development (red)

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	%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	100%	According to the Botanical Assessment (**Appendix D1**), the development is on municipal land which had already been degraded to some extent. It is also the most logical place in terms of existing infrastructure (next to the existing WWTW and the Municipal Landfill site). The remainder of the property is natural veld, grazed by livestock of the local herders. No alien invasive species were observed within the footprint.
Degraded (includes areas heavily invaded by alien plants)		
Transformed (includes cultivation, dams, urban, plantation, roads, etc)		

c) Complete the table to indicate:

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

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

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

The site would historically have been covered in Namaqualand Klipkoppe Shrubland (Least Threatened)(See Figure 5 below).

According to the Biodiversity Assessment (**Appendix D1**), the proposed development footprint is located on Municipal property, degraded to some degree as a result of previous disturbances, dumping of waste and the effect of livestock grazing. In addition, the on-going drought has compounded these impacts, resulting in a veld showing very low species diversity (although good rains, is very likely to restore some diversity in the veld).

The site supported a very dry version of Namaqualand Klipkoppe Shrubland. Because of the on-going drought, the vegetation on the site had been reduced to a few hardy species, most of which had already discarded their leaves in an attempt survive the drought. Although this is not uncommon (as the Namaqualand normally is very dry for three quarters of the year), the absence of even the most common leaf succulents suggest severe stress over a period of time. The veld was generally very uniform in species composition as well as structure and dominated by a low shrub layer (about 0.4 – 0.6 m in height). As to be expected during the dry season, the bottom stratum was mostly absent. Since no recent rains had fallen (and because of the timing) spring flowers and bulbs were almost totally absent and species diversity was even lower than normally expected (even for disturbed veld). The vegetation is not considered a threatened vegetation type, but conservation targets have not yet been met.

According to the Northern Cape CBA maps the proposed site falls within a CBA area. However, there is no alternative on the property that will not impact on the CBA. The site will not impact on any recognised centre of endemism.

The most significant botanical aspect of this site is the presence of a few species protected in terms of the Northern Cape Nature Conservation Act (Refer to Table 1 below).

Table 1: Plant species protected in terms of the NCNCA encountered within the study area (Botanical Impact Assessment (Appendix D1, Table3)

NO.	SPECIES NAME	COMMENTS	RECOMMENDATIONS
1.	*Crassula nudicaulis* var. *platyphylla* **Schedule 2 protected**	Occasionally observed within the footprint	**Search and rescue of these plants is recommended**. Species of the Crassulaceae Family normally transplant quite easily.
2.	*Euphorbia mauritanica* **Schedule 2 protected**	Scattered thoughout the site and quite common in this region.	Previous experience had shown that larger individuals of this species does not transplant very well. Species protection through topsoil conservation and re-used onto disturbed areas in the vicinity.
3.	*Galenia africana* **Schedule 2 protected**	A common plant on site and in this area.	Galenia africana is a common weedy pioneer. No special conservation needed.
4.	*Tylecodon wallichii* **Schedule 2 protected**	A relative common plant in this part of the Northern Cape. The plant is poisonous to livestock.	No special conservation needed.

Although not indicated on any NFEPA Maps, there is an ephemeral stream that flows to the north-east of the proposed development (see Figure 2 above). The site is directly adjacent to this ephemeral stream.

According to the Freshwater Assessment (**Appendix D2**), this drainage line flows into the Haas River, a tributary of the Buffels River.

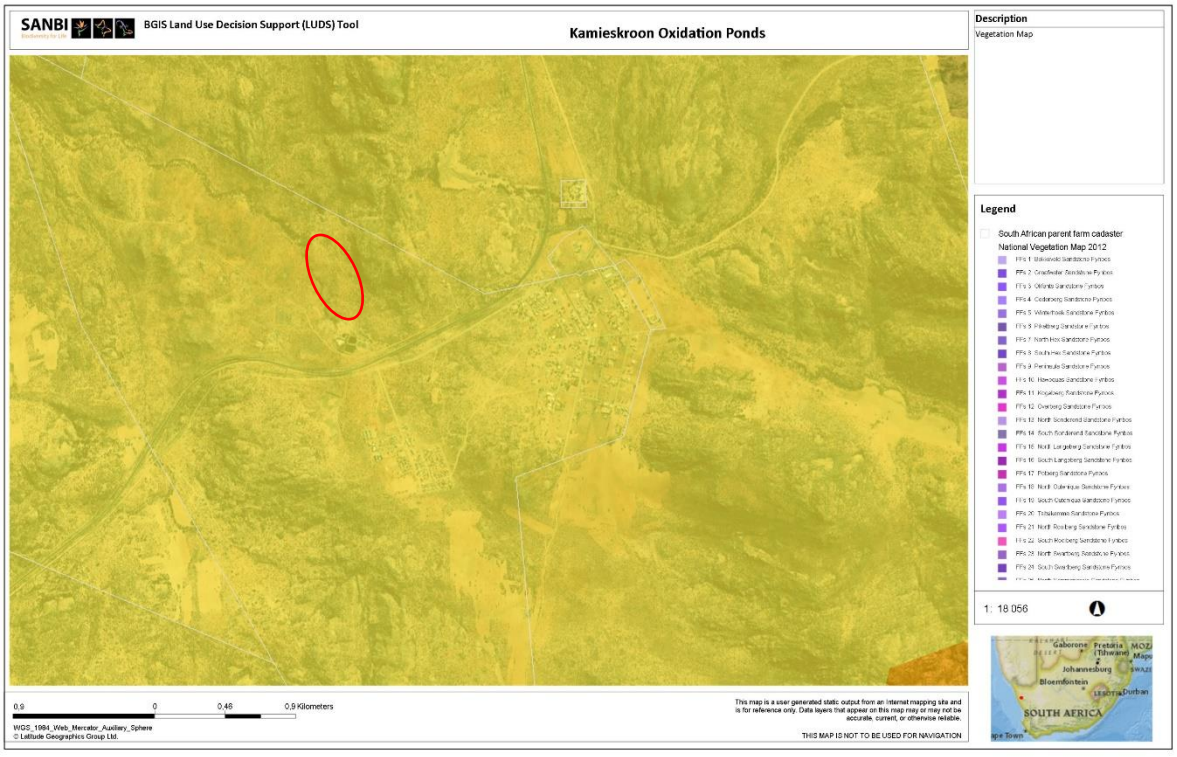

Figure 5: Vegetation Map indicating the location of the development (red). The site is located within Namaqualand Klipkoppe Shrubland (Least Threatened).

SECTION C: PUBLIC PARTICIPATION

• ADVERTISEMENT AND NOTICE

Publication name	Die Plattelander	
Date published	19 June 2020	
Site notice position	**Latitude**	**Longitude**
Date placed	See Appendix E1	

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

• 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)

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.

• ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
No comments were received during the initial PPP period	

• 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.

- **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
NC Department of Agriculture & Land Reform	W. Mothibi (HOD)	(053)838 9102			Private Bag X5018, Kimberley, 8300
Department of Cooperative Governance, Human Settlements and Traditional Affairs (NC)	Gladys Botha	053 830 9513			Private bag X5005, Kimberley, 8300
Department of Roads and Public Works	K. Nogwili (HOD)	(053)839 2241			P O Box 3132, Kimberley, 8300
Directorate Forestry Management	J. Mans	054 338 5909			PO Box 2782, Upington, 8800
Department of Water and Sanitation	A. Abrahams	053 830 8803	053 831 4534		28 Central Road, Beaconsfield, Kimberley, 8301
Department of Water Affairs-Northern Cape	R. Mazwi	053 7731239			Private Bag X6101, Kimberley, 8300
SANRAL	M Kleynhans				Private Bag X19, Belville, 7535

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.

- **CONSULTATION WITH OTHER STAKEHOLDERS**

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

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

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

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

SECTION D: IMPACT ASSESSMENT

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

- **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.

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
	Direct impacts: **Potential impact on freshwater ecosystems:** Possible lose sediments washed down the drainage line and into the Haas River	Insignificant (with mitigation)	• Limit the footprint • Level and landscape after construction • Construct during the dry summer months • Be mindful of the aquatic environment during construction and employ best practices • Maintain infrastructure at works • Timely planning for expansion of works prior to reaching design capacity • Carry out proper hydraulic modelling
	Biodiversity impacts: Land-use and Cover: Possible impact on socio-economic activities as a result of the physical footprint or associated activities. Vegetation Status: Possible loss of vulnerable or endangered vegetation and associated habitat. Conservation Priority Areas: Possible impact on Protected areas, CBA, ESA or centres of endemism.	Insignificant Insignificant Insignificant (with mitigation)	The following mitigation actions should be implemented to ensure that the proposed development does not pose a significant threat to the environment: • All construction must be done in accordance with an approved construction and operational phase Environmental Management Plan (EMP), which must include the recommendations made in this report. • A suitably qualified Environmental Control Officer must be appointed to monitor the construction phase in terms of the EMP and any other

	Connectivity: Possible loss of identified terrestrial and aquatic critical biodiversity areas, ecological support areas or ecological corridors. Protected & endangered plant species: Potential impact on threatened or protected plant species. Invasive Alien Species: Possible alien infestation as a result of activities. Veld Fire: The risk of veld fires as a result of the proposed activities.	Insignificant Insignificant (with mitigation) No impact Insignificant	conditions pertaining to specialist studies. • Because of the on-going drought the species diversity at the time of the study was most probably compromised. As a result, it is considered imperative that a further botanical scan is done before construction commence in order to ensure that permits are obtained for all protected plants encountered. • A permit application must be submitted with regards to protected plant species encountered. • **Before any work is done** protected species must be search & rescued as described in Table 1 (page 33). • Lay-down areas or construction sites must be located within the construction footprint. • No clearing of any area outside of the construction footprint may be allowed. • All waste that had been illegally dumped within the footprint must be removed to a Municipal approved waste disposal site. • An integrated waste management approach must be implemented during construction. ○ Construction related general and hazardous waste may only be disposed of at Municipal approved waste disposal sites.
	The loss of palaeontological resources	Very Low	There are no objections on palaeontological heritage grounds to authorisation of the proposed bulk water supply development. Should any substantial fossil remains (*e.g.* vertebrate bones and teeth, shells, calcretised burrows) be encountered during excavation, however, these should be reported to SAHRA for possible mitigation by a professional palaeontologist (Contact details: Dr Ragna Redelstorff, SAHRA, P.O. Box 4637, Cape Town 8000. Tel: 021 202

			8651.Email: rredelstorff@sahra.org.za).
	The loss of archaeological resources	Very Low	No archaeological resources were identified in Site 1 or in the area proposed for the desalination plant. Two sites of low local significance were identified in Site 2. In conclusion, the proposed development will not negatively impact on any significant archaeological resources and there is no objection to the proposed development and there is no preferred alternative in terms of impacts to heritage resources.
	Indirect impacts: **Temporary jobs will be created in the construction industry during the construction phase.**	Low - positive	No mitigation measures are required. Temporary jobs will be created during the construction phase
	Cumulative impacts: Biodiversity: Accumulative impact associated with the proposed activity.	Medium	
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
Alternative 2			
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		

Alternative 3			
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
	Direct impacts:		
	Indirect impacts:		
	Cumulative impacts:		
No-go option			
	Direct impacts: This would mean that no-development would take place and the proposed site will remain as is. No new bulk water supply system will be constructed, and no new water supply will be created for the town of Kamieskroon. Although this option would result in no potential negative environmental impacts, the socio-economic benefits from implementing the activity would not be achieved. The no-go option would only have been recommended if it were found that the construction of the proposed development on this site or in this area might potentially cause substantial detrimental harm to the environment. According to the Biodiversity Assessment (**Appendix D3**), the No-Go option is not likely to result in a "no-impact" scenario, as constant slow degradation is expected to continue as a result of urban activities and	Insignificant	N/A

	grazing in and around the site.		
	Indirect impacts:		
	Cumulative impacts:		

A complete impact assessment in terms of Regulation 19(3) of GN 326 must be included as Appendix F.

• 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)

The following is a summary of the potential impacts, and their ratings after mitigation, and probability of occurrence:

Construction phase.

Freshwater ecosystems **– None, unlikely.**

Loss of vegetation:

Land-use and Cover – **Negligible, unlikely.**
Vegetation Status – **Negligible, unlikely.**
Conservation Priority Areas – **Negligible, unlikely.**
Connectivity – **Negligible, unlikely.**
Threatened or protected plant species. – **Negligible, possible.**
Invasive Alien Species – **Negligible, unlikely.**

Potential impacts on heritage resources – **Very Low, Unlikely.**

Job creation – **Low (Positive)**, **definite**.

Noise impact - **Low (negative), definite, during construction phase.**

Visual impact – **Low (negative), definite, during construction**

Operational Phase

Geographical and/or physical aspects - **No impact expected**

Freshwater ecosystems **– Low, Possible**

Potential impacts on archaeological heritage – **No impact expected**

Socio-economic (additional job opportunities) – **Low (Positive), Definite**

Nuisances –**Low, Possible**

Visual impact – **Low, Probable**

Decommissioning

The project as proposed does not require 'decommissioning' or 'closure', as such the potential impacts thereof is considered irrelevant.

Alternative B

Alternative C

No-go alternative (compulsory)

This would mean that no-development would take place and the proposed site will remain as is. No expansion and upgrade of the existing oxidation ponds will take place for the town of Kamieskroon.

Although this option would result in no significant potential negative environmental impacts, the positive environmental and socio-economic benefits from implementing the activity would not be achieved. It will also mean that the capacity of the oxidation ponds will not be expanded, which is required due to the increasing demand for water and sanitation services.

The ponds overflow in the winter season when evaporation is low and the walls are breaking at times causing effluent water to run into streams and eventually ending up in nearby river streams. The effluent water is thus contaminating the groundwater system of the area.

The existing ponds will also not be lined, which can lead to further groundwater contamination.

The no-go option would only have been recommended if it were found that the construction of the proposed development on this site or in this area might potentially cause substantial detrimental harm to the environment.

According to the Biodiversity Assessment (**Appendix D1**), the No-Go option is not likely to result in a "no-impact" scenario, as constant slow degradation is expected to continue as a result of urban activities and grazing in and around the site.

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).

N/A

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

Compliance with the EMP and recommendations of the specialists and appointment of an ECO during the construction phase.		
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.

_____

NAME OF EAP

_____ _____

SIGNATURE OF EAP DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information