



GA Environment

TOPLINE LANDFILL: FINAL BASIC ASSESSMENT REPORT

BASIC ASSESSMENT AND WASTE MANAGEMENT LICENCE APPLICATION PROCESS FOR THE PROPOSED LICENSING OF THE TOPLINE LANDFILL, !KHEIS LOCAL MUNICIPALITY, NORTHERN CAPE PROVINCE

DENC REFERENCE NUMBER: NC/ZFM/!KH/TOP/09/2016

JUNE 2016

**BASIC ASSESSMENT
AND WASTE MANGEMENT LICENCE APPLICATION PROCESS FOR THE
PROPOSED LICENSING OF THE TOPLINE LANDFILL, !KHEIS LOCAL
MUNICIPALITY, NORTHERN CAPE**

Prepared for:

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14 June 2016

PROJECT INFORMATION

Title: Basic Assessment and Waste Management Licence Application Process for the Proposed Licensing of the Topline Landfill, !Kheis Local Municipality, Northern Cape

Competent Authority: Northern Cape Department of Environment, and Nature Conservation

Competent Authority

Reference No.: NC/ZFM/!KH/TOP/09/2016

Applicant: !Kheis Local Municipality

Environmental Consultants: GA Environment (Pty) Ltd




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Reviewer: Nkhensani Khandlhela, *(MSc)*

Date: 14 June 2016

Document History and Quality Control

Revision	Revision Date	Revision Comments	Originator	Reviewed By
1	31 January 2016	Draft for public review	Ntsebo Mofoka	Nkhensani Khandhlela
2	04 February 2016	Draft for public review	Ntsebo Mofoka	Nkhensani Khandhlela
3	27 May 2016	Final for submission to Competent Authority	Ntsebo Mofoka	Nkhensani Khandhlela

SIGNING OF THE ORIGINAL DOCUMENT

Original	Prepared by	Reviewed by	Approved by
Date: 30 May 2016	Name: Ntsebo Mofoka	Name: Nkhensani Khandhlela	Name: Andrew Woghiren
Version 4	Signature: 	Signature: 	Signature: 

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BASIC ASSESMENT REPORT

(For official use only)

File Reference Number:	
Application Number:	
Date Received:	

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Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 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. 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.
3. Where applicable **tick** the boxes that are applicable or **black out** the boxes that are not applicable in the report.
4. An incomplete report may be returned to the applicant for revision.
5. 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.
6. This report must be handed in at offices of the relevant competent authority as determined by each authority.
7. No faxed or e-mailed reports will be accepted.
8. The report must be compiled by an independent environmental assessment practitioner.
9. 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.
10. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.

SECTION A: ACTIVITY INFORMATION

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

YES	NO
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If YES, please complete form XX for each specialist thus appointed:
Any specialist reports must be contained in s D.

1. ACTIVITY DESCRIPTION

Describe the activity, which is being applied for, in detail:

1. Introduction and Background

The Department of Environmental Affairs (DEA) is assisting the !Kheis Local Municipality to licence the Topline Landfill for Operation. DEA has thus appointed GA Environment (Pty) Ltd as independent Environmental Consultants, to undertake the Basic Assessment (BA) process as part of the Waste Management Licence Process.

The Topline landfill is currently operational and receiving general waste. The !Kheis Local Municipality is applying for a Waste Management Licence in order to legally operate the facility, and to ensure that the site adheres to the NEM: WA, 2008 requirements, and other key legislation. The Waste Management Licence will be issued by the Northern Cape Department of Environment, Nature and Conservation, (DENC hereafter).

The !Kheis Local Municipality Integrated Development IDP (2014-2019) in the discussion of landfills within its jurisdiction states that “all landfill sites are operated illegally” due to “lack of Municipal capacity”. This is one of the environmental threats /risks identified in the IDP. Based on this statement, it is assumed that the Topline landfill is one of the sites that require licencing as outlined in the IDP. The IDP further mentions that there is a need for new landfill sites within the Municipality. The proposed locations of these landfill are however not mentioned in the document. Based on this, it is imperative to note that the !Kheis Local Municipality recognizes the importance of licensing landfills within its jurisdiction. With regards to other documentation that make mention of waste management, it must be noted that the !Kheis Local Municipality does not have an Integrated Waste Management Plan (IWMP). It must further be noted that the development of an IWMP is a requirement for all government spheres responsible for waste management in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (hereinafter referred to as the “Waste Act”). It is of utmost importance that the !Kheis Local Municipality consider the development of the IWMP.

The need to licence many of the unlicensed Waste Disposal in South Africa is regarded as one of key projects of the Minister of Environmental Affairs in order to achieve a cleaner environment. This initiative will aid in achieving the Ministers service delivery agreement Outcome 10 (Output 1 to 4) deliverable target/indicator which serves to ensure that environmental assets and natural resources are well protected and are continually enhanced. Further delays in implementing the project will mean that the !Kheis Local Municipality will continue to dispose waste on an unlicensed site thereby increasing the existing adverse environmental problems.

The !Kheis Local Municipality proposes to formally licence the existing Topline landfill site has been operating illegally/without a waste licence. It cannot be clearly confirmed when the operation of the Topline landfill site commenced. It is thus assumed that the landfill was commissioned prior to the establishment of the Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998 2nd Edition) and the promulgation of the National Environmental Management Waste Act (NEMWA hereafter), 2008 (Act No. 59 of 2008 as there is currently no permit available. It is therefore our understanding based on the information provided in the IDP that the Topline landfill is likely to be one of the facilities earmarked for licensing as highlighted in !Kheis Local Municipality

2. Location of the Topline Landfill

The Topline landfill site falls within the jurisdiction of Dr ZF Mgcawu District Municipality and the !Kheis Local Municipality. The Topline landfill is located on Erf 2681, Saalskop in Topline. The site is located approximately 100 km south east of Upington and is approximately 20km north west of the Groblershoop town. The site is located south west of the Topline township. The boundaries of the area indicated as that to be licenced is approximately 0.2 km from the edge of the informal settlement and approximately 0.5 km from the boundaries of the residential area.

Access to the landfill site can be gained from the N10 road, which connects Topline to Upington. From the N10, the site can be accessed from internal Streets. Numerous gravel roads then connect landfill to the Topline Township. The site is approximately one kilometre from the N10. Wastewater treatment works are located immediately west of the site. Topline Primary School is located about 600m south-south west of the site and a cemetery is located approximately 500m from the site. The area around the site comprises natural vegetation.

The site contains a drainage line. This drainage line drains into a dry bed system which drains into the Orange River approximately 3 km to the east of the site. During events of high rainfall and increased surface flow it is likely that some of the landfill material and waste may run into these dry bed systems and subsequently the Orange River. The site co-ordinates are 28°45'30.15"S; 21°50'14.46"E. The location of the site is indicated in **Figure 1** and **Figure 2**.

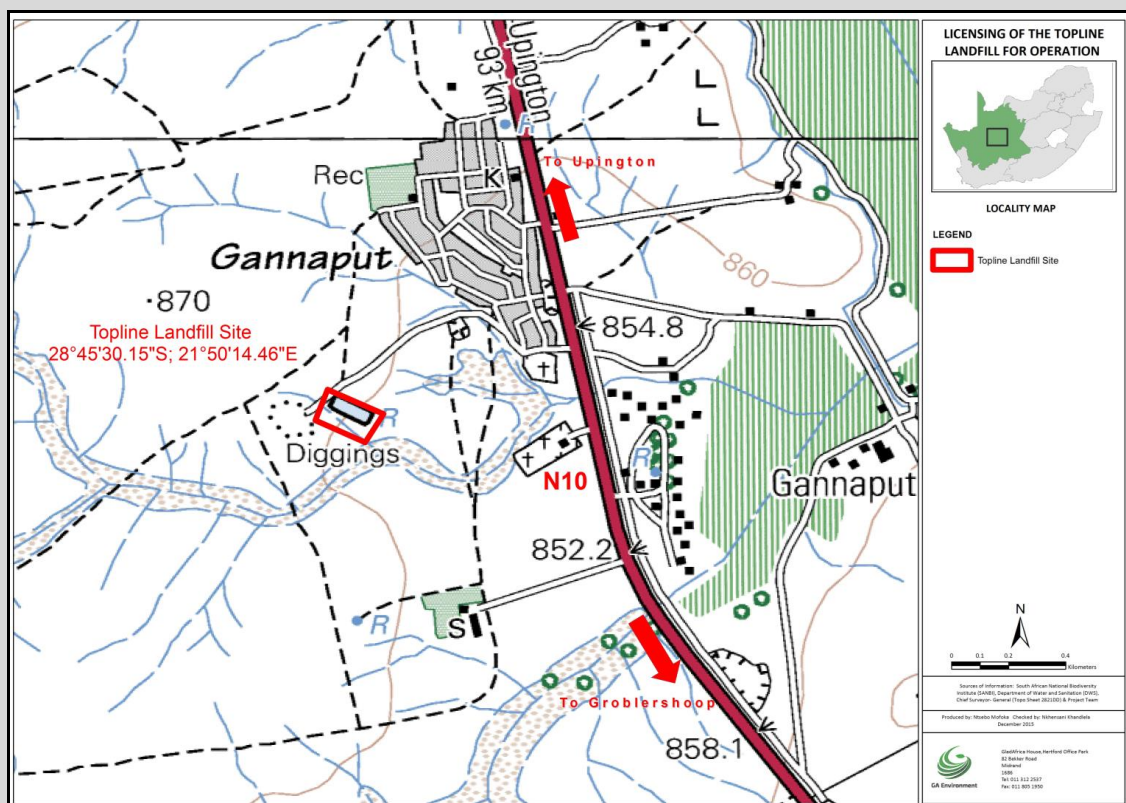


Figure 1: Locality Map of the Topline Landfill Site

Various Local Municipalities in the Northern Cape are faced with challenges of effectively constructing and operating their landfills due to a lack of resources. Basic landfill infrastructure, such as fencing, access gates, weighbridges etc. are absent from the majority of the landfills within the Province. This project therefore attempts to

address the backlog for service delivery with regards to the general waste management in the Municipality. It is anticipated that the MEC's together with the Local Municipality will be able to source funding following the licensing of this landfill. The proposed activities associated with the licensing of the Topline landfill will also include the construction of other basic infrastructure that is needed to operate the landfill in line with environmental norms and standards. The ultimate intention of this project is to operate the site in accordance with the National Norms and Standards for Disposal of Waste to a Landfill promulgated in August, 2013.

The Northern Cape Province is one of the provinces that is regarded as semi-arid and most communities in the area are making use of borehole water, and are thus dependent on groundwater sources for domestic uses. The lack of the groundwater monitoring in relation to the landfill has also been identified as a matter of concern considering the Province's dependence on underground water resources. It is therefore of utmost importance that the landfill is managed and monitored in a manner that avoids contamination of these resources. This project, the licencing of the various landfill sites, thus serves to address the ongoing environmental problems associated with the unlicensed waste sites.

The licensing of the landfill will ensure that the !Kheis Local Municipality adheres to the requirements of the NEM:WA and that the landfill site is operated according to environmental requirements. The correct operation of the landfill will ensure that adverse impacts from the landfill are minimized.

3. Solid waste removal services in Topline

Based on the Statistics South Africa Data of 2011, from a total of 303 households surveyed in Topline, waste is removed by local authority/private company at least once a week from 261 households and 29 households have no disposal services. This and other information is indicated in **Table 1**.

Table 1: Waste disposal methods in Topline

Removed by local authority/private company at least once a week	Removed by local authority/private company less often	Communal refuse dump	Own refuse dump	No rubbish disposal	Other
261	7	0	6	29	0

The !Kheis Local Municipality Integrated Development Plan (IDP) (2014-2019) mentions that there refuse removal services within the Municipality are insufficient due to capital and operational capacity.

4. Status Quo

The Topline landfill is about 3 hectares in size and is owned and operated by the !Kheis Local Municipality. According to DWAF Minimum Requirements for Waste Disposal by Landfill (1988), landfill sites are classified according to the type and volume of waste handled/treated/stored at the specific facility per day. (volume = maximum amount of waste handled/treated/stored per day for which the facility was designed) Unfortunately, site records indicating the quantities of waste that the Topline landfill may have received over the period of usage could not be obtained from the Local Municipality. There is no evidence of the sorting of waste on site or any waste recycling efforts. There are also no records available for the amount of waste that is reclaimed from the site. Based on the fact that the waste site was used solely for disposal of domestic waste from the surrounding areas and possibly farms, it is assumed that the site can be classified as a G:C:B- (General waste, communal size and non-leachate producing). The site climatic water balance classification is unknown as no calculation data is available from the Municipality. The Topline area is a low rainfall area and low evaporation rate area, and thus most likely a negative-water-balance-area. The site can be classified as a non-leachate generating site.

The Topline site is not fenced off. This allows for easy access to humans and animals. While there is currently a designated cell for the disposal of waste, there is a wide scattering of waste even in the areas outside the waste

cell boundaries. Burning of waste occurs on the site. Large volumes of rubble are disposed off at the landfill site as well the surrounding areas. There is no evidence of waste covering or compaction. In addition to this, there is no evidence of either groundwater or gas monitoring noted in the vicinity of the landfill site. Refer to **Figures 3, 4** and **5** for some photographs of the site. Additional photographs of the site are in **Appendix B**.



Figure 2: View towards Topline showing the informal housing immediately north of the site and the access road leading to the landfill. Note the waste strewn across the site (July 2015)



Figure 3: View north east towards the waste cell indicated by red arrow. Note waste strewn outside the waste cell (July 2015)



Figure 4: View towards the south west showing the interior of the waste cell. Note the vegetation growing inside the abandoned waste cell (September 2015)

5. Applicable Waste Management Listed Activities applied for:

According to the National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) as amended, the Operation of the Topline landfill requires a Waste Management License (Government Notice 921 of November 2013). This licence is meant to be issued after the undertaking of an Environmental Impact Assessment (EIA) or a Basic Assessment (BA). **Although the EAP recognises that an EIA would be the correct process to follow, the competent authority (DENC) and DEA have advised that the project follow a BA process.**

The following Waste Management listed Activities would thus be applicable:

- *Category A Activity 13:* The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule;
- *Category B Activity 8:* The disposal of general waste to land covering an area in excess of 200m² and with a total capacity exceeding 25 000 tons; and
- *Category B Activity 9:* The disposal of inert waste to land in an excess of 25 000 tons, excluding the disposal of such waste for the purposes of levelling and building which has been authorised by or under other legislation.

In terms of Sections 24(2) and 24D of the National Environmental Management Act (Act No. 107 of 1998), as amended, a Basic Assessment process as stipulated in the EIA Regulations (2014) must also be undertaken. The Application Form (excluding appendices) authorizing all applicable waste activities is included as **Appendix G4**. The acknowledgement letter was received by GA Environment with the reference number **NC/ZFM/!KH/TOP/09/2016**. Refer to **Appendix E9** for the Proof of acknowledgement letter from DENC.

6. Applicable NEMA EIA Regulations, 2014 - Listed Activities applied for:

A drainage line is located on the southern edge of the site. This drainage line is classified as a watercourse and is considered sensitive. (See **Appendix E8.4** for a Letter from DWS stating this and how a Water Use Licence Application will be necessary). An Environmental Authorisation is therefore required for the proposed development in terms of Sections 24(2) and 24D of the National Environmental Management Act (Act No. 107 of 1998) Government Notice 983. the following list of activities are triggered:

- GN R.983 12 (xii) The development of infrastructure or structures with a physical footprint of 100 square metres or more; Where such a development occurs - Within a watercourse in front of a development setback; or if no development setback exists, within 32 metres of a watercourse. Measured from the edge of a watercourse.
- GN R.983 19 (i) The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from – A watercourse

In terms of Sections 24(2) and 24D of the National Environmental Management Act (Act No. 107 of 1998), as amended, a Basic Assessment process as stipulated in the EIA Regulations (2014) must also be undertaken for these applications. A separate application form in terms of these listed activities was lodged with DENC. Refer to **Appendix G4** for the delivery receipt of the Application Form.

7. Project description and Design requirements

The future infrastructure associated with the waste disposal site will include:

- A general waste cell designated for the disposal of waste;
- A boundary fence;

- An access gate;
- A waste sorting facility or area for recyclables (if required); and
- Other infrastructure such as a guardhouse and ablution facilities (depending on the Municipality's budget and requirements).

The Facility Illustration is attached as **Appendix C**.

Other requirements that have to be considered as part of the disposal facility will include facility design including site classification, site layout, access, hydrology and drainage design, containment, leachate management, leachate detection, monitoring systems and the rehabilitation plan in line with the Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998).

- Implementation of erosion protection measures;
- Removal of illegally dumped waste and disposal at a licensed facility;
- Possible implementation of measures to restrict public access and prevent further illegal dumping;
- Control of alien vegetation;
- Establishment of a monitoring programme (to monitor erosion, subsidence, drainage, storm water management, ponding, fire and security)

Prior to the establishment of any landfill, it is required to determine the nature and quantities of the waste that will be deposited into the landfill and the impacts the land filling operation might have on the receiving environment. The Department of Water and Sanitation whilst still operating under the old name of the Department of Water Affairs and Forestry (DWAF) developed a series of guidelines that serve as standards for managing waste and sets minimum requirements that an applicant wishing to obtain a permit for a landfill would have to adhere to be in compliance with prevailing legislation. The Norms and Standards for Disposal of Waste to Landfill issued in August 2013 must also be considered during the licensing of the Topline landfill.

Based on the information outlined in the Conceptual Engineering Report (**Appendix D2**), it is recommended that a Class C Containment Barrier (liner system) in accordance with Section 3(1) and (2) of the Norms and Standards be utilised. Please refer to **Figure 5** for an example of a Class C landfill liner system.

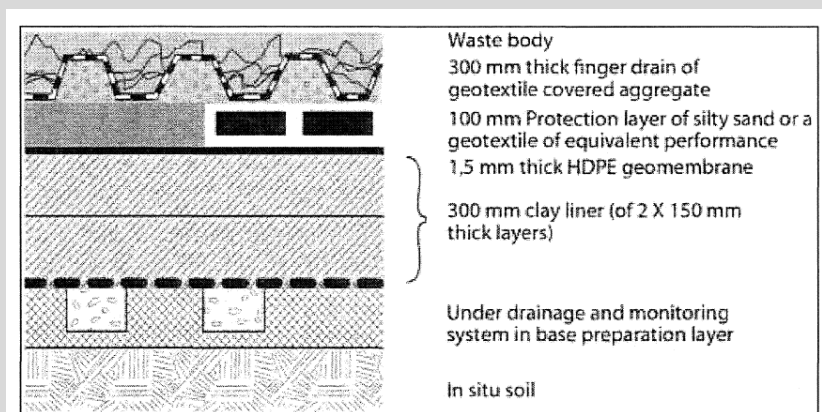


Figure 5: Liner System for a Class C Landfill (WCMR, GNR 636, 2013)

The containment barriers of landfills for the disposal of waste in terms of Section 4 of the Norms and Standards must comply with the minimum engineering design requirements specified in the Norms and Standards.

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. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity 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.

Proposed and preferred alternative: Licensing of the Topline landfill for operation

The Topline landfill is currently operating without a license and does not adhere to the NEM: WA. Licensing this landfill will adhere to the Minimum Requirements for Waste Disposal by Landfill, 2nd Edition (DWAF, 1998), and the National Norms and standards for the disposal of waste to landfills promulgated in August 2013. The rationale behind the project serves to address the following issues:

- The need to license many unlicensed waste disposal facilities existing within each municipality is in line with the Minister of Environmental Affairs' initiative towards attaining a cleaner environment;
- The current environmental problem will be eliminated such as visual nuisance, contamination of underground water and this will eliminate potential for litigation from organizations that are directly affected; and
- The disposal of waste in Topline will be in accordance with the legislative requirement and will thus improve efficiency in terms of the municipality waste disposal programme. The intention is to license the facility as a prerequisite for construction of basic infrastructure, such as a weighpads, perimeter fence, etc.

This is the preferred and only viable option for the proposed licensing of the Topline landfill site.

Three alternatives have been considered for the purposes of Basic assessment are discussed as follows:

Alternative 1: Closure and Rehabilitation of the Topline landfill

The proposed closure and rehabilitation of the unlicensed landfill would ensure that the site is environmentally and publicly acceptable and that it complies with the Minimum Requirements for Waste Disposal by Landfill, 2nd Edition (DWAF, 1998), and the National Norms and standards for the disposal of waste to landfills promulgated in August 2013. However, it would leave the Municipality with the problem of having inadequate disposal airspace.

As has already been discussed, the closure and rehabilitation of the site would entail the following:

1. Shaping and landscaping of the waste body;
2. The construction of storm water management infrastructure;
3. Capping of the waste body in accordance with the Minimum Requirements;
4. Concrete palisade fencing;
5. The maintenance of access roads;
6. Vegetative cover of the final landform;
7. The construction of the required end-use infrastructure (once finalised); and
8. Post closure environmental monitoring where necessary.

Although closure is viable, this is outweighed by the preferred alternative of licensing the existing site for operation. The following are the disadvantages of the closure and rehabilitation:

- The closure and rehabilitation of the landfill site will require the Municipality to identify a new site for the landfill;
- The use of new land will create new environmental impacts at another location This will result in greater cumulative impacts; and
- Contamination of underground water resources in the water scarce the Northern Cape which is a water scarce Province.

Mitigation measures outlined in the Closure Report (**Appendix F2**) must be adhered to for the purposes of the rehabilitation of this landfill site, when it is decommissioned in the future.

Alternative 2: Closure Capping

While new South African regulations for landfill capping design are currently being drafted, the Minimum Requirements for landfill still provide the specifications for closure and capping design for landfills in South Africa. The standard capping system consists of an intermediate cover layer, a clay layer and a vegetative layer. After the entire landfill or a single landfill cell has reached its final capacity the waste needs to be covered first by an intermediate cover layer, which is insensitive to settlements of the landfill surface. The functions of this intermediate cover layer (e.g. 50 cm of soil or compost) are:

- Prevention of erosion by wind and water;
- Reduction of water infiltration, and gas emissions
- Promote vegetation re-growth; and
- For aesthetic reasons.

As an alternative to the standard capping design, natural alternatives may be considered for example, landfill covers constructed of native soils and vegetation can achieve the required

level of infiltration reduction and provide significant cost savings over the current prescribed cover design.

Two types of alternative cover designs are *Monolithic Soil Cover* and *Capillary Break Cover* systems. *The Monolithic design* uses one type of soil, which is typically silty, due to its high water holding capacity and compatibility with vegetation. This design works well in arid and semi-arid sites, such as those found in the Northern Cape Province, because of its high rate of evapotranspiration (between 80 percent and 100 percent).

The Capillary Break system is comparable to a monolithic cover, except for a coarse-grained material layer (i.e. gravel), which is inserted about 3 feet below the topsoil layer. This lower layer disrupts soil suction, which often draws moisture downward. Although more expensive than the Monolithic Cover, this system can perform better in cold or wet climates. Alternative final covers and construction techniques can provide several cost-saving benefits such as:

- On-site soils are used instead of importing large amounts of clay or buying synthetic materials;
- Landfill personnel and equipment can be used to construct the alternative cover, reducing operations and construction costs;
- Sites can be covered as they fill up, even one or two acres at a time;
- Native vegetation takes hold more easily because it is more adapted to natural soil conditions; and
- Long-term maintenance costs are lower.

In addition, geomembranes and compacted clay layers limit the activities possible on sites after closure and also limit how the land can be contoured or sloped. Using an alternative cover offers more flexibility. For example, a site that is currently an active landfill can be turned into a recreation or greenspace area after final closure.

Alternative 2: End use Planning

An end-use plan for the landfill site will guide what would be the most suitable land use for the area. The choice of end-use type is dependent on the urban or rural spatial planning of the area in which the landfill is situated. **Table 2** below show the end-use possibilities, categorized from low-graded re-use to high-graded end-use. The type of end-use can also relate to the potential vulnerability, expressed in the average number of hours per day that people may spend at the location. The longer humans spend at or near the site, the higher the chance of potential exposure to any residual effects of the landfill site and the higher the potential vulnerability. **Table 2** shows the relationship between the vulnerability of the type of end-use and the environmental risk-levels of the landfill.

Table 2: End use types

Quality of End Use	Type of End Use
↓ ↓ ↓ ↓ ↓ ↓	Parking Area
	Industrial Area
	Commercial Area
	Natural Area
	Sports and Recreation
	Residential Area
High grade	

Table 3: Landfill End Use Matrix

Landfill Type	Type of End-Use	
	Low Vulnerability	High Vulnerability
Low Risk ¹		
High Risk ²		

It is clear that the situation indicated in the green box can allow for redevelopment projects and other similar activities. The situation indicated in the red box represents the opposite situation. For example from a psychological point of view the end use of the landfill site for housing will not be feasible anyway and should in fact not be wanted. In the yellow box situation many types of end-use are possible, but the feasibility is depending on the local situation.

*Impacts from the alternatives discussed above (Closure and Rehabilitation, **Landfill capping and End use plan**) will collectively be assessed with the construction/operation impacts as the impacts are likely to be similar.*

No-Go Alternative

The no-development alternative would entail continuing with the status quo, i.e. a situation where the Topline landfill remains operating without a licence. This could lead to major environmental liability, as the Municipality must eventually take responsibility for ensuring that the landfill operates according to legislative requirements. Moreover, the operation of waste facilities is a listed activity in terms the National Environmental Management Waste Act, (Act No. 59 of 2008), Government Notice 921, Listed Activities, Category A (10 and 13). Adopting the “No go alternative” is also against the requirements of !Kheis Local Municipality’s IDP, as this document states that the Municipality intends to licence all facilities that are operating illegally. Further delays in implementing the project will mean that the !Kheis Local Municipality will continue to dispose waste on unlicensed sites thereby causing adverse environmental impacts as well as affecting tourism in the area.

The significance of the *no-go* alternative has far more negative impacts and implications than the preferred alternative, namely the continued operation and future expansion of the site.

The significance of the *no-go* alternative therefore has far more negative impacts and implications than the preferred alternative, namely the Operation of the site.

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

¹ Low risk site here mainly refer to Communal sites, and small sites

² High Risk sites in this case refer to Medium, Large and Hazardous landfill sites.

3. ACTIVITY POSITION

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.

List alternative sites, if applicable.

Alternative:

Alternative S1³ (preferred or only site alternative)

Alternative S2 (if any)

Alternative S3 (if any)

In the case of linear activities:

Alternative:

Alternative S1 (preferred or only route alternative)

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

Alternative S2 (if any)

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

Alternative S3 (if any)

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

Latitude (S):

Longitude (E):

28°	45.515'S	21°	50.281'E
0	'	0	'
0	'	0	'

Latitude (S):

Longitude (E):

0	'	0	'
0	'	0	'
0	'	0	'

0	'	0	'
0	'	0	'
0	'	0	'

• 0	• '	• 0	• '
• 0	• '	• 0	• '
• 0	• '	• 0	• '

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.

4. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1⁴ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

or, for linear activities:

Alternative:

Size of the activity:

*Approximately 20,403 m²
i.e. 2.hectares*

m²

Length of the activity:

³ "Alternative S.." refer to site alternatives.

⁴ "Alternative A.." refer to activity, process, technology or other alternatives.

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

m
m
m

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

Alternative:

Alternative A1 (preferred activity alternative)
 Alternative A2 (if any)
 Alternative A3 (if any)

Size of the site/servitude:

m ²
m ²
m ²

5. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	NO
	<i>Existing access roads may require upgrading, however roads are no listed</i>

Describe the type of access road planned:

Depending on the availability of funds, these access roads can be upgraded to improve site accessibility

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.

6. SITE OR 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:

- 6.1 the scale of the plan which must be at least a scale of 1:500;
- 6.2 the property boundaries and numbers of all the properties within 50 metres of the site;
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites;
- 6.4 the exact position of each element of the application as well as any other structures on the site;
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, street lights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all trees and shrubs taller than 1.8 metres;
- 6.7 walls and fencing including details of the height and construction material;
- 6.8 servitudes indicating the purpose of the servitude;
- 6.9 sensitive environmental elements within 100 metres of the site or sites including (but not limited thereto):

- rivers;
 - the 1:100 year flood line (where available or where it is required by DWA);
 - ridges;
 - cultural and historical features;
 - areas with indigenous vegetation (even if it is degraded or invested with alien species);
- 6.9 for gentle slopes the 1 metre contour intervals must be indicated on the plan and whenever the slope of the site exceeds 1:10, the 500mm contours must be indicated on the plan; and
- 6.10 the positions from where photographs of the site were taken.

7. 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 form. It must be supplemented with additional photographs of relevant features on the site, if applicable.

8. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of 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.

Refer to **Appendix C** for the facility illustration.

9. ACTIVITY MOTIVATION

9(a) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	R 1 million
What is the expected yearly income that will be generated by or as a result of the activity?	Unknown
Will the activity contribute to service infrastructure?	YES NO
Is the activity a public amenity?	YES NO
How many new employment opportunities will be created in the development phase of the activity?	Unknown, local jobs
What is the expected value of the employment opportunities during the development phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	YES
How many permanent new employment opportunities will be created during the operational phase of the activity?	Unknown
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?	Unknown

9(b) Need and desirability of the activity

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

The !Kheis Local Municipality is applying for a Waste Management Licence in order to legally operate the facility, and to ensure that the site adheres to the NEMWA, 2008 requirements and other key legislation. The current landfill site is not operated and managed in accordance with the requirements of the Waste Act and thus poses various environmental problems such as threatening the health of humans and animals, visual nuisances, land pollution, groundwater contamination, threats to tourism, etc. Once licensed, the environmental risks will be greatly reduced through the planned installation of basic infrastructure. The Municipality cannot obtain financial assistance to fund an illegal facility; hence it is being assisted by the Department of Environmental Affairs to carry out the preliminary phase of improving the operations by licencing the facility. It must be noted that as the Municipality has a limited budget to operate and manage the landfill. Obtaining a Waste Management Licence will also serve as a basis to seek funding opportunities and assistance from financial institutions such as the Development Bank of South Africa (DBSA), other State Departments such the National Treasury and other National Ministries. Furthermore, as the !Kheis Local Municipality is an organ of state, it is expected to lead by example in implementing Waste Management practices that will contribute to creating a cleaner, more sustainable environment.

Indicate any benefits that the activity will have for society in general:

Society will have a landfill that is operated and managed in line with the relevant legislation, including norms and standards, thereby reducing risks such as the threat to the health and safety of humans and animals. It would also set a precedent and good example of how to operate Municipal facilities in a responsible and judicious manner.

Indicate any benefits that the activity will have for the local communities where the activity will be located:

Based on the National Waste Management Strategy (zero waste to landfills), It is the intention of DEA to encourage reuse, recycling and recovery, with disposal of waste at landfills being a last resort. The licensing of the Topline landfill site will encourage and cater for possible recycling initiatives in Topline. These recycling initiatives will assist the community in generating their own revenue.

DESIRABILITY:			
1.	Does the proposed land use / development fit the surrounding area?	YES	NO
2.	Does the proposed land use / development conform to the relevant structure plans, SDF and planning visions for the area?	YES	NO
3.	Will the benefits of the proposed land use / development outweigh the negative impacts of it?	YES	NO
4.	If the answer to any of the questions 1-3 was NO, please provide further motivation / explanation:		
5.	Will the proposed land use / development impact on the sense of place?	YES	NO
6.	Will the proposed land use / development set a precedent?	YES	NO

7.	Will any person's rights be affected by the proposed land use / development?	YES	NO
8.	Will the proposed land use / development compromise the "urban edge"?	YES	NO
9.	If the answer to any of the question 5-8 was YES, please provide further motivation / explanation.		
	Question 5: N/A		
	Question 6: N/A		

BENEFITS:			
1.	Will the land use / development have any benefits for society in general?	YES	NO
2.	Explain: The licensing of the landfill will ensure that humans and animals are no longer exposed to risks arising from the status quo at the site. In addition to this, the licensing of the landfill and the accompanying construction of relevant infrastructure as well as the management of the landfill according to legislation will increase tourism opportunities in the surrounding areas as the adverse impacts associated with the landfill will be mitigated.		
3.	Will the land use / development have any benefits for the local communities where it will be located?	YES	NO
4.	Explain: In addition to the benefits outlined in point 2 above, the licensing of the Topline landfill site will encourage recycling initiatives in Topline . These recycling initiatives will assist the community in generating revenue and in turn alleviating poverty.		

10. 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:	Administering authority:	Date:
National Environmental Management Act, 1998 as amended	National Department of Environmental Affairs	1998
NEMA EIA Regulations, 2014: R. 982, published in Government Gazette 38282 on 4 December 2014.	National Department of Environmental Affairs	2014
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008)	National Department of Environmental Affairs	2008
Waste Classification and Waste Management Regulations (GN 634), 2013	National Department of Environmental Affairs	2013
National Norms and Standards for Disposal of Waste to Landfill (GN 636), 2013	National Department of Environmental Affairs	2013
National Norms and Standards for the Assessment of Waste for Landfill Disposal (GN 635), 2013	National Department of Environmental Affairs	2013
National Norms and Standards for the Storage of Waste (GN 926)	National Department of Environmental Affairs	2013
Waste Information Regulations (GN 625)	National Department of	2012

	Environmental Affairs	
National Environmental Management Air Quality Act, 2004 (Act No. 39 of 2004)	National Department of Environmental Affairs (Chief Air Pollution Officer)	2004
National Water Act, 1998 (Act No. 36 of 1998)	National Department of Water Affairs	1998
Occupational Health and Safety Act (Act No. 85 of 1993)	National Department of Labour	1993 (2000)
DWAF, Minimum Requirements for Waste Disposal by landfill (Second Edition, 1998).	National Department of Environmental Affairs	1998
DWAF, Minimum Requirements for Handling, Classification and Disposal of Hazardous Waste (Second Edition, 1998).	National Department of Environmental Affairs	1998

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

11(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

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

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

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)?
N/A

Where will the solid waste be disposed 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 relevant legislation?

YES	NO
-----	----

If yes, inform the competent authority and request a change to an application for scoping and EIA.

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.

11(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?

m³

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:

--

11(c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere?

YES	NO
YES	NO

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

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

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

During the construction phase, dust and vehicular emissions will be released as a result of earthmoving machinery. However these emissions will have a short term impact on the immediate surrounding area and thus no authorisation will be required for such emissions. Appropriate dust suppression measures must be implemented (e.g. removal of vegetation in a phased manner and using recycled water for spraying dust to reduce the impacts).

11(d) Generation of noise

Will the activity generate noise?

YES	NO
YES	NO

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

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

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

Noise will be generated by construction vehicles and construction activities. It will however be short-term, localised and will last during the construction phase only. The noise levels are anticipated to be less during the day than during the night as required for suburban districts with little road traffic in terms of SANS 10103; thus no authorisation will be required.

In order to minimise the impacts of noise during the construction phase, construction activities should be restricted to between 07H00 and 17H00 Monday to Friday. This is required in order to avoid noise and lighting disturbances outside of normal working hours. All construction equipment must be maintained and kept in good working order to minimise associated noise impacts. If required, adequate noise suppression measures (i.e. screens, etc) must be erected around the point source of construction and/or operational noise pollution to reduce noise to an acceptable level.

12. 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 (should some water be required, municipal water will be used)
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If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:

Does the activity require a water use permit from the Department of Water Affairs?

litres	
YES	NO

If yes, please submit the necessary application to the Department of Water Affairs and attach proof thereof to this application if it has been submitted.

13. ENERGY EFFICIENCY

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

Fuel and Oil - Delivery vehicles and other construction equipment will use petrol, diesel and oil. Use and number of such vehicles and machinery will be restricted to that which is absolutely necessary for the construction activities and deliveries.

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 C and indicate the area, which is covered by each copy No. on the Site Plan.

Section C 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 form XX for each specialist thus appointed:

All specialist reports must be contained in **Appendix D**.

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):

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

Alternative S3 (if any):

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

2. LOCATION IN LANDSCAPE

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

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

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	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:

- 4.1 Natural veld – good condition ^E
- 4.2 Natural veld – scattered aliens ^E
- 4.3 Natural veld with heavy alien infestation ^E
- 4.4 Veld dominated by alien species ^E
- 4.5 Gardens
- 4.6 Sport field
- 4.7 Cultivated land
- 4.8 Paved surface
- 4.9 Building or other structure
- 4.10 Bare soil

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.

*An Ecological opinion was also undertaken during the Basic Assessment, please refer to **Appendix D1** for the report*

5. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that does 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:

5.1 Natural area

5.2 Low density residential

5.3 Medium density residential

5.4 High density residential

5.5 Informal residential^A

5.6 Retail commercial & warehousing

5.7 Light industrial

5.8 Medium industrial^{AN}

5.9 Heavy industrial^{AN}

5.10 Power station

5.11 Office/consulting room

5.12 Military or police base/station/compound

5.13 Spoil heap or slimes dam^A

5.14 Quarry, sand or borrow pit

5.15 Dam or reservoir

5.16 Hospital/medical centre

5.17 School

5.18 Tertiary education facility

5.19 Church

5.20 Old age home

5.21 Sewage treatment plant^A

5.22 Train station or shunting yard^N

5.23 Railway line^N

5.24 Major road (4 lanes or more)^N

5.25 Airport^N

5.26 Harbour

5.27 Sport facilities

5.28 Golf course

5.29 Polo fields

5.30 Filling station^H

- 5.31 Landfill or waste treatment site
- 5.32 Plantation
- 5.33 Agriculture
- 5.34 River, stream or wetland
- 5.35 Nature conservation area
- 5.36 Mountain, koppie or ridge
- 5.37 Museum
- 5.38 Historical building
- 5.39 Protected Area
- 5.40 Graveyard
- 5.41 Archaeological site
- 5.42 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.

If YES, specify and explain:	N/A
------------------------------	-----

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

If YES, specify and explain:	<ul style="list-style-type: none"> • If the landfill is not properly managed, the residents of the informal settlement will suffer an environmental injustice. • The Sewage treatment Plant located close to the site will most likely not be not affected by the landfill
------------------------------	--

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

If YES, specify and explain:	N/A
------------------------------	-----

6. 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?

YES	NO
Uncertain	

If YES, explain:

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

Briefly explain the findings of the specialist:

The upgrade of the Topline landfill will be limited to the landfill boundaries and no impacts on features of heritage significance are anticipated. Should features of heritage value be discovered during the upgrade, a registered heritage specialist must be called on site to investigate the significance of such features. *It must be noted that SAHRA was contacted during this Basic assessment and have advised that mitigation measures such as the development of a 'Chance Find Procedure should heritage resources be uncovered during construction.*

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 submit or, make sure that the applicant or a specialist submits the necessary application to SAHRA or the relevant provincial heritage agency and attach proof thereof to this application if such application has been made.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT

The person conducting a public participation process must take into account any guidelines applicable to public participation as contemplated in section 24J of the Act and must give notice to all potential interested and affected parties of the application which is subjected to public participation by—

- (a) fixing a notice board (of a size at least 60cm by 42cm; and must display the required information in lettering and in a format as may be determined by the competent authority) at a place conspicuous to the public at the boundary or on the fence of—
 - (i) the site where the activity to which the application relates is or is to be undertaken; and
 - (ii) any alternative site mentioned in the application;
- (b) giving written notice to—
 - (i) the owner or person in control of that land if the applicant is not the owner or person in control of the land;
 - (ii) the occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iii) owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken;
 - (iv) the municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area;
 - (v) the municipality which has jurisdiction in the area;
 - (vi) any organ of state having jurisdiction in respect of any aspect of the activity; and
 - (vii) any other party as required by the competent authority;
- (c) placing an advertisement in—
 - (i) one local newspaper; or
 - (ii) any official *Gazette* that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of these Regulations;
- (d) placing an advertisement in at least one provincial newspaper or national newspaper, if the activity has or may have an impact that extends beyond the boundaries of the

- metropolitan or local municipality in which it is or will be undertaken: Provided that this paragraph need not be complied with if an advertisement has been placed in an official *Gazette* referred to in subregulation 54(c)(ii); and
- (e) using reasonable alternative methods, as agreed to by the competent authority, in those instances where a person is desiring of but unable to participate in the process due to—
- (i) illiteracy;
 - (ii) disability; or
 - (iii) any other disadvantage.

2. CONTENT OF ADVERTISEMENTS AND NOTICES

A notice board, advertisement or notices must:

- (a) indicate the details of the application which is subjected to public participation; and
- (b) state—
 - (i) that the application has been submitted to the competent authority in terms of these Regulations, as the case may be;
 - (ii) whether basic assessment or scoping procedures are being applied to the application, in the case of an application for environmental authorisation;
 - (iii) the nature and location of the activity to which the application relates;
 - (iv) where further information on the application or activity can be obtained; and
 - (iv) the manner in which and the person to whom representations in respect of the application may be made.

3. PLACEMENT OF ADVERTISEMENTS AND NOTICES

Where the proposed activity may have impacts that extend beyond the municipal area where it is located, a notice must be placed in at least one provincial newspaper or national newspaper, indicating that an application will be submitted to the competent authority in terms of these regulations, the nature and location of the activity, where further information on the proposed activity can be obtained and the manner in which representations in respect of the application can be made, unless a notice has been placed in any *Gazette* that is published specifically for the purpose of providing notice to the public of applications made in terms of the EIA regulations.

Advertisements and notices must make provision for all alternatives.

Refer to **Appendix E4** for the proof of the placement of an Advertisement in a Newspaper.

4. DETERMINATION OF APPROPRIATE MEASURES

The practitioner must ensure that the public participation is adequate and must determine whether a public meeting or any other additional measure is appropriate or not based on the particular nature of each case. Special attention should be given to the involvement of local community structures such as Ward Committees, ratepayers associations and traditional authorities where appropriate. Please note that public concerns that emerge at a later stage that should have been addressed may cause the competent authority to withdraw any

authorisation it may have issued if it becomes apparent that the public participation process was inadequate.

*As proof of all Public Participation undertaken, please refer to **Appendix E**.*

5. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments and respond to each comment of the public before the application 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 this application. The comments and response report must be attached under **Appendix E**.

*Refer to **Appendix E6** for Comments and Response Report.*

6. AUTHORITY PARTICIPATION

Authorities are key interested and affected parties in each application and no decision on any application will be made before the relevant local authority is provided with the opportunity to give input. The planning and the environmental sections of the local authority must be informed of the application at least 30 (thirty) calendar days before the submission of the application.

List of authorities informed:

- Northern Cape Department of Environment and Nature Conservation
- Northern Cape Department of Water and Sanitation
- !Kheis Local Municipality (Planning, Development and Technical Services)
- ZF Mgqawu District Municipality (Environmental Health)

List of authorities from whom comments have been received:

Subsequent to the end of the 30-day review period of the Draft Basic Assessment Report, the status of the receipt of comments is as follows;

- ZF Mgqawu District Municipality (Environmental Health) – There were no comments received. Please see **Appendix E8.1** for proof of this.
- Kheis Local Municipality (also the project Applicant) - The Municipality stated that they had no comments. See **Appendix E8.2**. Comments were also not received from the Ward Councillor. **See Appendix 8.3.**
- Department of Water and Sanitation - Comments were received, **see Appendix E8.4**
- SAHRA - Comments have been received, **see Appendix E8.5.**
- Northern Cape Department of Environment and Nature Conservation - Comments were not received from this Department. See **Appendix E7** and **Appendix E9** as proof of the receipt of the report.

7. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for linear activities, or 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.

Any stakeholder that has a direct interest in the site or property, such as servitude holders and service providers, should be informed of the application at least 30 (thirty) calendar days before the submission of the application and be provided with the opportunity to comment.

A copy of the Draft Basic Assessment Report was issued to various stakeholders. Please refer to **Appendix E7** and **Appendix E8** for the Proof of Delivery of the Draft BAR.

Has any comment been received from stakeholders?

YES	NO
-----	----

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

N/A

SECTION D: IMPACT ASSESSMENT

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

1. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

List the main issues raised by interested and affected parties.

No comments have been received from I&APs except the general that are common to landfills and which highlight that the landfill is unsafe for children and animals. The Draft Basic Assessment report was availed for Public Review at the Municipal Paypoint in Topline and SMS' were sent out to I&APs to advise them of this. E-mails were also sent to various parties to inform them of the availability of the Report. Refer to **Appendix E8.6** for the e-mails and SMS'.

- SAHRA- This department has no objections to the development. Conditions that must be adhered to will be included in the EMPr these include the reporting of the uncovering of Heritage resources to SAHRA must be informed. Additional comments are in **Appendix E6 and E8.5**
- DWS- The Local Municipality (Applicant) must consult the DWS to determine the need of the Water Use License as there is a drainage line within 32m of the site. This is discussed in a letter from DWS dated 25th April 2016 and can be referred to **Appendix E8.4**.

Response from the practitioner to the issues raised by the interested and affected parties (A full response must be given in the Comments and Response Report that must be attached to this report):

The requirements of SAHRA and DWS have been included in the EMPr as well as the Closure Report. Refer to **Appendix E6** for the complete Comments and Response Report.

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

List the potential direct, indirect and cumulative property/activity/design/technology/operational alternative related impacts (as appropriate) that are likely to occur as a result of the planning and design phase, construction phase, operational phase, Operation 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.

Planning and Design Phases: the planning and design phases of the landfill are not expected to result in any negative impacts because the site are is already operational.

Construction and operation phase: Impacts from the Construction and the Operational Phase are discussed in the Table overleaf. **Although the site is transformed by waste disposal activities, it is understood that the activities that will be undertaken during the upgrade of the site will still have impacts that will need to be managed.** For these reasons impacts and mitigations for both upgrade/construction phases will be include in these tables. An Ecological opinion (**Appendix D**) has been undertaken to identify potential issues that may emanate from the licencing of the landfill. The impacts are assessed and presented as follows

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
1. Impacts on flora	Direct impacts Re-capping" and reshaping of selected areas on site may result in disturbance to vegetation	Medium	<ol style="list-style-type: none"> 1. Clearing of vegetation should be minimal within and outside the landfill boundaries. 2. Rehabilitation / restoration of remaining indigenous vegetative cover and grassland during and after rehabilitation; 3. Management of point discharges during construction activities to avoid unnecessary soil erosion; 4. Implement alien plant control activities; 5. Implementation of best management practices regarding stormwater and 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
			earthworks; 6. Provision of adequate sanitation facilities located outside of the wetland/riparian area or its associated buffer zone during construction activities; 7. Implementation of appropriate stormwater management during activities to prevent the ingress of run-off into the excavation; and particularly; and 8. Prevention of erosion, and where necessary rehabilitation of eroded areas.	
	<p>Indirect Impacts</p> <p>Establishment of alien and invasive species in disturbed areas</p>	Low	1. Control and manage alien invasive species 2. Attention must be given to newly re-shaped/ recapped areas, and any other areas disturbed during closure operations which may be vulnerable to infestation by invasive and alien plant species. 3. Monitoring programme be implemented to enforce continual eradication of alien and invasive plant species 4. Control and manage the removal of vegetation 5. Vegetation removal to be undertaken in consultation with the ECO	Low
	<p>Cumulative impacts</p> <p>Vegetation loss in the area from other</p>	Low	1. Control and manage the removal of vegetation 2. Vegetation removal to be undertaken in	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	developmental projects		consultation with the ECO	
2. Impact on soils Construction activities i.e. excavations and earth grading will be undertaken.	Direct Impacts <ol style="list-style-type: none"> 1. Soil erosion, soil compaction, chemical soil pollution and soil degradation. 2. Insufficient stormwater control measures on site may result in soil erosion in areas that are not properly managed during the construction 3. Contaminants may also be released from the waste body into the soil during construction 4. 	Medium	<ol style="list-style-type: none"> 1. Construction of anti-erosion berms 2. Ripping of compacted soil to avoid sheet erosion 3. Ensuring that stockpiles are well managed to minimise erosion 4. Planting of grass 5. Regularly inspect all storm water channels 6. Provide soil conservation measures in areas of susceptible erosion 	Low
3. Impacts on faunal resources	Direct Impacts Faunal species inhabiting in the area will be disturbed during the project activities e.g. Killing and snaring of mammal and reptile species by labourers.	Medium	<ol style="list-style-type: none"> 1. Intentional killing of faunal species should be avoided by means of awareness programmes presented to the labour force. The labour force should be made aware of the conservation issues pertaining to the species occurring on the study site 2. All construction activities must be limited to daylight hours 3. Minimisation of disturbance of trees and construction footprint 4. Prevention of runaway fires. 	Low
	Indirect Impacts	Medium	Implement mitigation measures outlined above	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	Disturbances of faunal species across extended temporal scales will eventually affect any population's ability to sustain itself, and will more than likely result in total abandonment of a particular area.			
	Cumulative impacts Disturbances of faunal species across extended temporal scales will eventually affect any population's ability to sustain itself, and will more than likely result in total abandonment of a particular area.	Low	Implement mitigation measures outlined above	Low
4. Impacts on water resources	Direct impacts Surface water brought about by the construction activities may flow into surrounding dry drainage features during the site activities if inappropriately managed	Medium	<ol style="list-style-type: none"> 1. Avoid, as far as reasonably possible, disturbing drainage lines within the surrounding environment 2. The Municipality must consult with the Department of Water and Sanitation regarding the details related to the undertaking of a Water Use License before commencement of activities on site and in the case of pollution of the drainage lines the Regional Representative of the Department of Water and Sanitation must be informed immediately 3. Control of activities directly impacting on drainage lines e.g. Few construction workers and limited construction machinery must be allowed in the 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
			<p>surrounding drainage lines to limit the impacts</p> <ol style="list-style-type: none"> 4. Stormwater should not be diverted into the drainage lines 5. Cement mixing, if applicable, will need to take place on a hard surface or cement mixing trays (mortar boards) will need to be used for this purpose. Cement mixing will not be permitted to occur where run-off can enter the drainage lines. 6. No vehicle washing must occur on site unless in a designated wash bay which must then be constructed. Wash bays must be installed with sand and grease traps. 7. Management of on-site water use must be strictly implemented 8. In the case of pollution of the drainage line the Regional Representative of the DWS must be informed immediately 	
	<p>Indirect Impacts</p> <p>Sedimentation and disturbance of surrounding the drainage line due to construction activities</p>	<p>Low</p>	<p>Implement mitigation measures outlined above</p>	<p>Low</p>

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	<p>Cumulative impacts</p> <p>Change of the drainage line functioning due to construction activities</p>	Low	Implement mitigation measures outlined above	Low
<p>5. Impacts on groundwater</p> <p>Groundwater contamination during construction activities. <i>(The risk of landfill leachate contaminating groundwater resources, thereby reducing the quality of groundwater in the area)</i></p>	<p>Direct impacts</p> <p>Excavation and other activities related to construction may trigger groundwater seepage into the excavated area</p> <p>Hydrocarbon leakages from plant vehicles and poor management of sources of hydrocarbon leakages has a potential to pollute underground and surrounding resources</p>	Medium	<ol style="list-style-type: none"> 1. Use of impermeable liner (HDPE or GCL) to prevent ground water contamination and leachate; 2. Storm-water management measures to prevent ponding and to encourage storm water to flow around/ off the site, must be implemented on site. 3. Measures to prevent ongoing illegal dumping of waste must be implemented 4. Adhere to all the mitigation highlighted in Engineering report and the Closure plans 5. Construction vehicles are to be maintained in good working order, to reduce the probability of leakage of fuels and lubricants. 6. All cement mixing must occur on impervious surfaces and within controlled bermed areas. 7. Oil residue must be treated with oil absorbent such as Drizit or similar and this material removed to a licensed waste disposal site. 8. Contractor/s must provide regularly serviced portable chemical toilets for construction workers at a distance no more than 200 m from the site 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
			rehabilitation 9. No materials may be discharged from the construction camps.	
	Indirect Impacts Contaminated groundwater can flow to other aquifers within Topline and possibly beyond this.	Low	Implement mitigation measures outlined above in the Closure plans attached to the report	Low
	Cumulative impacts The irrigation of crops with contaminated groundwater can result in illness to the humans and animals who consume them.	Low	Implement mitigation measures outlined above	Low
6. Impacts on stormwater	Direct impacts The accumulation of uncontrolled stormwater runoff on the environments. The landfill will continue to generate surface runoff and leachate long after closure and hence effective storm water management must be implemented	Medium	<ol style="list-style-type: none"> 1. The landfill can be rehabilitated (landscape the landfill to resemble the natural topography) 2. Construction of an attenuation/leachate pond onsite to capture runoff water and polluted water from the landfill, and surrounding environment 3. Ensure effective stormwater management principles to reduce the loss of topsoil during heavy downpours 	Low
	Indirect Impacts Contaminated stormwater can flow to	Low	Implement mitigation measures outlined above	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	aquifers and surface water resources in close proximity to the site as well as other areas at a distance from the site			
	Cumulative impacts Contaminated stormwater that negatively impacts on water resources can be used for other activities which can affect human and animal health	Low	Implement mitigation measures outlined above	Low
7.Noise impacts	Direct impacts Vehicles transporting materials to and from the site will potentially cause an additional noise burden to adjacent residents (± 1 km from the site) as well as along internal access roads. Construction workers may be affected by noise generated by construction machinery	Medium	<ol style="list-style-type: none"> 1. Construction activities to be limited to office hours on weekdays as far as possible. 2. The contractor must ensure that noise levels remain within acceptable limits and that labourers have equipment such as ear plugs to be used during the undertaking of activities with high levels of noise 3. Maintenance of equipment and operational procedures: Proper design and maintenance of silencers on diesel-powered equipment 	Low
	Indirect Impacts Due to exposure to high noise levels, deafness can result among site labourers	Low	Adhere to noise mitigation measures discussed above	N/A
	Cumulative impacts	Low	Adhere to noise mitigation measures already discussed	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	With the loss of hearing, labourers are likely to be unable to secure jobs. This may result in the inability to provide for their dependents			
8. Impact on visual and aesthetic quality	<p>Direct impacts</p> <p>The removal of waste from the current areas, to the area of the landfill that will be licensed will result in adverse visual impacts</p>	Low	Although this will be temporary, efforts must be made to undertake this during non- windy conditions to avoid windblown litter affecting surrounding properties.	Low
	<p>Cumulative impacts</p> <p>Windblown litter could extend up to the nearby N10 road. This can have major impacts on tourism in the area</p>	Low	As per the mitigation measures discussed under the direct impacts above	Low
9. Impact on air quality	<p>Direct impacts</p> <p>Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent residents. Trucks may potentially distribute dust along internal access roads. This issues is of concern as the landfill site is located in sandy area.</p>	Medium	<ol style="list-style-type: none"> 1. Implement dust suppression measures (wetting or application of a soil binding compound) in all areas that will be affected by construction activities and where dust will be generated. This must also be undertaken during windy and dry weather conditions 2. A continuous dust monitoring process needs to be undertaken during construction. 3. Speed restriction of 20km/h must be implemented for all construction 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
			vehicles. 4. All vehicles transporting friable materials such as sand, rubble etc. must be covered by a tarpaulin or wet down.	
	Indirect Impacts None	N/A	Adhere to dust mitigation measures already discussed	N/A
	Cumulative impacts Dust can affect vegetation on vacant lands surrounding the landfill. Due to the damage, the vegetation may cease to perform certain functions. As a result of this, fauna that is dependent on the vegetation will be affected, the ability of vegetation to prevent erosion, etc. will be limited.	Low	As per the mitigation measures discussed under the direct impacts above	Low
10. Impact on socio-economics	Direct impacts Influx of workers in the area may raise concerns from neighbouring residents	Medium	<ol style="list-style-type: none"> 1. All adjacent landowners must be informed of the construction processes prior to commencement of construction activities. 2. Adjacent land owners must be informed timeously of any service stoppages in their areas. 3. Notification must include possible timeframes for stoppages. 4. Consequences of such stoppages must be clearly indicated to all 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
			<p>surrounding/affected land owners.</p> <p>5. Affected land owners must be timeously informed of any/all maintenance of the bulk water services supply which may result in service stoppages to their properties. Again this must include possible timeframes so alternatives can be provided.</p>	
	<p>Direct impacts</p> <ul style="list-style-type: none"> Local residents are likely to acquire unskilled labour employment opportunities during the activities 	Medium-Positive	<ol style="list-style-type: none"> The activities will provide direct temporary employment for locals, and indirect employment through demand for construction materials, and support services, as well as empowerment and skills transfer opportunities. The Municipality must investigate other waste disposal options e.g. waste transfer stations and buy back centres to encourage and promote recycling The activities must be designed to accommodate labour intensive tasks as possible Labour must be sourced from the local people especially youth, people with disabilities and women 	Low
	<p>Indirect Impacts</p> <p>Indirect employment through demand for construction materials, refreshments and support services, as well as empowerment and</p>	Medium positive	The contractor must as far as possible source resources from locals	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	skills transfer opportunities			
	<p>Cumulative impacts The increased demand for construction materials will in turn result in the creation of jobs at factories</p> <p>Increased job opportunities could result in the ease of acquisition of resources that the unemployed could not previously afford</p>	Low- positive	N/A	Low
11.Impacts on traffic and local roads	<p>Direct impacts</p> <p>1. As there is minimal traffic in Topline, it is not expected that Construction vehicles will contribute to congestion. Construction vehicles moving within the community in order to reach the site may cause accidents. Construction machinery and heavy vehicles are likely to generate dust which is likely to be perceptible by adjacent land owners. Trucks may potentially distribute dust along internal access roads.</p>	Low	<ol style="list-style-type: none"> 1. Vehicular movement beyond the property boundaries may not occur during peak hour traffic times (07h30 – 08h30 and 16h00 – 17h00). 2. There must be an erection of signage warning motorists about the presence of construction vehicles as well and the need to reduce speeds. 3. It must be ensured that a backlog of traffic does not develop at the access points during peak hours through the upgrade to the road system and the implementation of an efficient and effective access control system. 4. Speed restriction of 20km/h must be implemented for all construction vehicles. 	Low
	Indirect Impacts	Low	Adhere to mitigation measures already discussed	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	Road accidents caused by construction vehicles can result in the community protesting about the project leading to its suspension.			
	Cumulative impacts The suspension of the project can result in the illegal operation of the landfill continuing	Low		Low
12. Health and Safety impacts	Direct impacts Impacts/injuries to humans entering the site either legally or illegally due to general failure to comply with the Occupational Health and Safety Act, 1993 and the Construction Regulations, 2014.	Medium	The Municipality must appoint a Construction Health and Safety Agent to enable it to fulfil its functions as the Client/Implementer of the project. Other measures must include the following: <ul style="list-style-type: none"> • Signs in appropriate local languages must be erected on site to warn people entering the sites of the potential risks; • The site and excavations must be fenced off and demarcated using danger tape to ensure that no animals or residents enter the area; • Personal Protective Equipment and Safety gear must be worn at all times; • The Safety Officer on site should put any other measures in place to ensure that health and safety of all persons entering the site either legally or illegally is not compromised; and • No fires should be allowed at or around the construction site. 	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	Indirect Impacts The health and safety of passer-by's can be affected by incidents such as where material from the site, e.g. stones, causes injuries	Low	Adhere to mitigation measures already discussed	Low
	Cumulative impacts Persons injured on site could pursue litigation against the contractor and/or client	Low	Adhere to mitigation measures already discussed	Low
13. Impacts on unknown and existing cultural and heritage resources	Direct impacts Exposure of unknown heritage features beneath the earth surface	Medium	<ol style="list-style-type: none"> 1. Should any heritage resources, including or human remains be unearthed during the course of construction, construction activities should immediately cease and SAHRA be contacted on 021 462 4502. 2. No heritage resources may be removed, destroyed and/or interfered with on site without the permission of an accredited archaeologist subsequent to communication with SAHRA. 	Low
	Indirect Impacts Heritage resources of importance may be damaged/illegally removed.	Low	Adhere to mitigation measures already discussed	Low
	Cumulative impacts This may then result in the loss of	Low	Adhere to mitigation measures already discussed	Low

Potential impacts:	Description	Significance rating of impacts: (without mitigation)	Proposed mitigation: Construction and Operation Phase	Significance rating of impacts after mitigation:
	possible new knowledge			
<p>Operational phase impacts: These impacts will occur as a result of continued operations of the landfill site as currently is. These impacts and the associated mitigation measures have already been discussed above. In brief, impacts associated with the Topline landfill will impact on the existing biodiversity, surface and ground water quality, air and soil quality, human health, social impacts and infrastructure etc. Mitigation measures highlighted above and in and in the EMPr (Appendix F1) will significantly reduce the impacts.</p>				
<p>Decommissioning phase impacts: The decommissioning phase would entail the closure of the landfill site, the covering of the waste body, re-capping, reshaping, and landscaping of the waste disposal area and ultimate rehabilitation of the landfill. It is anticipated that the Municipality will determine an appropriate end-use following the final rehabilitation of the site. It must be noted that the closure and decommissioning of the landfill site is a listed activity that will require a separate Environmental Assessment process that should be conducted when closure is required.</p>				

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as **Appendix G2**.

3. ENVIRONMENTAL IMPACT STATEMENT

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

The proposed Licensing of the Topline landfill site is expected to improve the current site condition which has created a visual and other environmental nuisances. The proposed licensing will serve as an upgrade of the current landfill is a strategic response to address legislative requirements associated with landfill operations. The Topline landfill is currently operating illegally as it is not in compliance with the Minimum Requirements for disposal of waste to landfill and other Environmental requirements.

Based on the summary of environmental observations presented, it is a conclusion of this BA that the proposed upgrade of the Topline landfill will have low impacts on the bio-physical environment, all of which can be fully mitigated and managed, and where possible prevented. Continuation of the landfill activities on the site is not likely to negatively affect local ecological function. It is however important that best practice be applied in containment of the waste material to ensure that pollution and littering does not occur. It is further important that annual monitoring for establishment of alien invasive plant species should be done. The risk of wind erosion should be considered and monitored. As there are water resources within and around the landfill site, these must be monitored. Although activities related to the upgrade and operation of the landfill site may have a potentially adverse impacts of a low to medium significance ground water pollution, air quality and the quality of soil (erosion and degradation), these impacts are envisaged to be immediate to the site and easily mitigated with the application of recommended mitigation measures.

The Ecological Opinion compiled by Limosella Consulting, the EMPr provided with this BA and the applicable mitigation measures and procedures that must be implemented during the upgrade of the site.

The licensing of the Topline landfill is considered viable with the application of mitigation measures discussed in this report

Alternative A (preferred alternative)

The Operation of the Topline landfill site which is to be licensed for operation is expected to improve the current site conditions which have been creating environmental nuisances since illegal waste disposal started occurring on site.

Based on the summary of environmental observations presented the proposed project will have Medium (moderate) to low impacts on the bio-physical environment, all of which can be fully mitigated and managed, and where possible prevented. The proposed development will have an impact of medium significance as there are no sensitive ecological environment in the surrounding areas. No unacceptably impacts of unacceptably high significance are foreseen once proper mitigation measures have been implemented.

It is crucial that the site management requirements and procedures outlined in this report, the EMPr, Operational and Closure Plans be implemented as an attempt to reduce the impacts historically caused by the landfill.

Alternative 1: Closure and Rehabilitation of the landfill

The closure and rehabilitation of the landfill is environmentally feasible. It is however noted that the Topline landfill is the only available waste disposal option in close proximity to the Topline community. The closure of the site without consideration of other waste disposal options will cause further environmental pollution problems. The closure of the landfill site must only be considered once the landfill has reached capacity. Once rehabilitated, the site can therefore be closed and potential for other end uses can be investigated.

Based on this, the closure of the Topline landfill is currently not a viable option and can only be considered once the landfill has reached its airspace capacity.

Alternatives 2 and 3.:Closure capping and End use planning

As discussed, the capping of the landfill is a design alternative that can be considered once the landfill has reached its capacity. The Topline landfill site still has available airspace and the closure capping is therefore not a suitable option.

With regard to end use planning, the possibility for end use planning can be considered once the Topline landfill has reached capacity. This option is also not viable as the objective of the proposed development is to licence the existing Topline landfill.

No-go alternative (compulsory)

The no-development alternative would entail continuing with the status quo, i.e. a situation where the Topline landfill continues to operate illegally. This could lead to major environmental liability as the Municipality must take responsibility for adequate operations of the landfill in line with the legislative requirements. Moreover, the operation of waste facilities is a listed activity in terms the National Environmental Management Waste Act, (Act No. 59 of 2008), Government Notice 921, Listed Activity, Category A (10 & 13) and the Municipality therefore has a responsibility to adhere to this legal requirement. Adopting the "No go alternative" is also against the requirements of !Kheis Local Municipality's IDP and the Northern Cape Department of Environment and Nature Conservation's key performance areas to ensure that that improved integrated waste management systems, such as legally permitted disposal facilities exist within each Municipality. The need to licence many of the unlicensed Waste Disposal in South Africa is regarded by the Minister of Environmental Affairs as one of her key projects to ensure a cleaner environment. Further delays in implementing the project will mean that the !Kheis Local Municipality will continue to dispose waste on an unlicensed site thereby causing adverse environmental problems. This would also prevent the Municipality from accessing funds for installation of basic infrastructure required to meet minimum environmental norms and standards.

In addition, the need to licence many of the unlicensed Waste Disposal in South Africa is regarded by the Minister of Environmental Affairs as one of key project towards a cleaner environment. This initiative will aid in achieving the Ministers service delivery agreement Outcome 10 (Output 1 to 4) deliverable target/indicator that serves to ensure that environmental assets and natural resources are well protected and are continually enhanced. Further delays in implementing the project will mean that the !Kheis Local Municipality will continue to dispose waste on an unlicensed sites thereby causing adverse environmental problems. Further delays in implementing the project will mean that the !Kheis Local Municipality will continue to dispose waste on an unlicensed sites thereby causing adverse environmental problems

The failure to design and operate the site as well as implement a suitable End-use Plan is therefore not considered a viable or sustainable alternative as it does not meet either the Minimum Requirements or the DEA standards for waste site operation as prescribed in the Environmental Management: Waste Act, 2009. Moreover, it does not conform to the Best Environmental Option available.

The significance of the *no-go* alternative therefore has far more negative impacts and implications than the preferred alternative, namely the continued operation of the site under improved conditions.

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
YES	NO

Is an EMPr attached?

The EMPr must be attached as Appendix F.

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

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

EAP RECOMMENDATION

This BAR has provided a comprehensive assessment of the potential minimal environmental impacts associated with the operation of the Boegoeberg landfill. These impacts have been identified by the EAP. The key findings of the BA are discussed in this Report.

The operation of Boegoeberg landfill site is considered the only viable alternative, based on the minimal impacts of the proposed licensing on the bio-physical environment. It is therefore recommended that the license is granted to operate and expand the Boegoeberg landfill subject to the following conditions:

- The District and Local Municipalities must initiate projects to raise awareness on waste management and reduction strategies in communities;
- The District and Local Municipalities must prioritise the implementation of alternative waste disposal options (construction of waste transfer stations, buy-back centres, etc.);
- The Local Municipality must initiate clean-up campaigns to ensure that all waste dispersed outside the active disposal site is removed and disposed of within the active area;
- It is recommended that a recycling facility be considered as a potential small-scale material recovery centre to promote the separation of recyclables out of the general waste stream. It may serve as a centralised facility where source separation of recyclables and garden refuse can take place;
- The !Kheis Local Municipality must compile an Integrated Waste Management Plan (IWMP);
- Compliance with the mitigation measures outlined in this BA report, the EMPr; the Operational Plan and the Closure Plan;
- Implementing and adhering to the operational procedures and measures outlined in the Operational and the Closure Plan;
- Adhering to the mitigation measures outlined in the Ecological Opinion Report;
- Operational activities planned for landfill should be done with care to minimize any accidental spills of hazardous and harmful materials. Swift reaction and remedial actions will limit the local risk of polluting groundwater.
- Regular/applicable monitoring and evaluation of the Boegoeberg landfill for environmental compliance must be undertaken at least once a year;
- All adjacent landowners must be informed of construction activities at least 30 days before their commencement;

- An independent Environmental Control Officer (ECO) should be present during construction of the new infrastructure to ensure the works are undertaken in an environmental sensitive manner;
- The Local Municipality (Applicant) must consult the DWS to discuss the process for the undertaking of a Water Use License as there is a drainage line within the boundaries of the site. This is based on the DWS letter dated 25th April 2016. The Applicant must also still adhere to all Mitigation Measures outlined in the letter from DWS. Refer to **Appendix E8.4** for this letter;
- The Applicant must appoint a Geohydrological Specialist to undertake detailed groundwater studies that will include the determination of the historical groundwater data including the location of the monitoring boreholes and further determine the required water quality monitoring in line with DWS requirements. The results of these studies must be submitted to DWS for review and approval before the commencement of construction;
- The Municipality must appoint a Professional Registered Engineer to undertake detailed designs of the landfill and the associated infrastructure that will incorporate leachate management systems, other water management systems, pollution control systems required for the landfill and any other necessary infrastructure;
- Should any heritage features be uncovered during the proposed development, SAHRA should immediately be alerted and depending on the nature of the heritage features, either an archaeologist or a palaeontologist must be appointed to inspect the findings and then undertake a Phase 2 rescue operation where necessary. The Municipality must consult SAHRA should there be any future construction of infrastructure outside the area to be licenced for operation. These and other conditions are mentioned in the letter from SAHRA dated April 18th 2016. **See Appendix E8.5** for this letter; and
- Compliance with all legal requirements in relation to environmental management and conditions of the authorisation issued by DENC.

Based on the environmental assessment of the conditions, the proposed licensing of the site for operation has emerged as the most viable option. It is therefore recommended that the site be licensed for operation and the !Kheis Local Municipality be granted a Waste Management License and an Environmental Authorization.

SECTION F: APPENDIXES

The following appendixes must be attached as appropriate:

Appendix A: Site plan(s)

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports

Appendix E: Comments and responses report

Appendix F: Environmental Management Programme (EMPr)

Appendix G: Other information