

#### **4.2.2.5 Water management**

##### **4.2.2.5.1 Storm water management**

###### **Klippan Co-disposal Facility and project development area:**

The current water management system network in the area related to the proposed location of the Khanyisa Coal Supply infrastructure is shown in Figure 13 below (as taken from the Kleinkopje Pit 2A Extension Storm Water Management Plan, dated September 2016 and compiled by Shangoni Management Services)<sup>32</sup>. As can be seen from Figure 13, label 1a represents the current seepage trenches conveying affected seepage water from the Klippan Co-disposal Facility to the plant return water dams at Khwezela Bokgoni (previously Kleinkopje) Colliery. The affected water flows through silt traps before entering the plant return water dams.

As mentioned previously, the slurry line, which is currently pumping slimes (slurry) to the Klippan Co-disposal Facility (from the Khwezela Bokgoni Colliery Plant) will be re-routed to a new filtration plant, located within the DHRP footprint area. The filter slimes will be discharged onto the product conveyor and the excess water is proposed to be returned to the existing Khwezela Bokgoni return water dams. It is proposed that the existing seepage trenches be utilised for this purpose<sup>33</sup>. This will however be investigated further as part of the storm water management plans and designs, also taking planned Khwezela Bokgoni Colliery planned storm water strategies into account.

Water management within the proposed DHRP footprint area will include internal storm water management measures and a pollution control dam (PCD) to collect runoff water from the DHRP footprint area as well as the plant section, for re-use in the process. The preliminary process water layout is attached in Annexure A. Designs for the PCD will be finalised during the EIA- and Water Use Licence Application Phase. Further, the hydrology (storm water) aspects will be assessed as part of the EIA phase for the proposed project.

<sup>32</sup> The proposed Kleinkopje (Khwezela: Bokgoni) Colliery Pit 2A Extension project area is located in close proximity to the Khanyisa Coal Supply Project Area (i.e. on eastern side of Provincial road) and entails the mining of the coal located underneath the 2A dam (shown in Figure 13).

<sup>33</sup> Alternatives with regards to excess return water to be further considered taking the current Khwezela Bokgoni storm water strategies into account



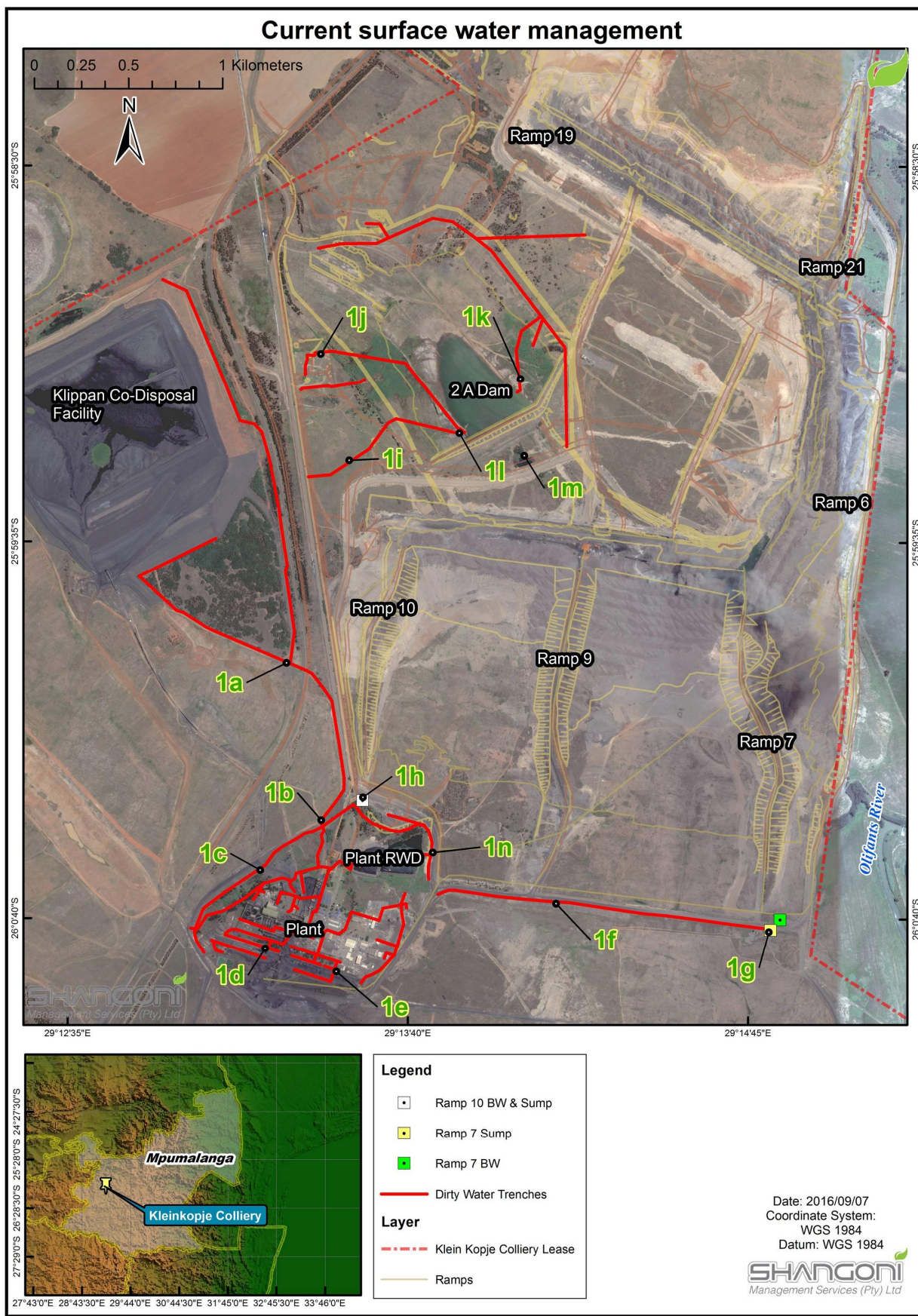


Figure 13: Khwezela Bokgoni Pit 2A and surrounds current storm water management (Shangoni, 2016)



Storm water management at the Khanyisa IPP and Ash Disposal Site (environmental authorisation granted):

As per the *Integrated Water Use Licence Application (IWULA) and Integrated Water and Waste Management Plan (IWWMP)*, for the ACWA Power Khanyisa IPP Project (Revision 4), dated February 2017 and prepared by Aurecon<sup>34</sup>, a storm water management plan was compiled for the power station site and the ash disposal site.

*Power Station site:*

Rain falling on different areas of the power station site, will be routed into different networks depending on the expected quality of the runoff. The following areas have been identified as per Table 6 below.

**Table 6: Different water streams within the power station site (Aurecon, 2017)**

Water Stream	Source or drainage area	Description
Potentially dusty runoff	<ul style="list-style-type: none"> <li>Ash collection points</li> <li>Ash silo area (ash truck loading area)</li> <li>Limestone open storage</li> </ul>	<p>This run-off water is subject to carrying a significant amount of dust, coal amongst other heavy metals. This water will be sent to the dirty water recovery pit to be reused in the Coal and Ash or desulfurization processes.</p> <p>In the event where these processes are offline or cannot absorb the full flow of the runoffs, the dirty water recovery pit will overflow to the evaporation pond.</p>
Potentially oily runoff	<ul style="list-style-type: none"> <li>Transformers catchment area</li> <li>Roads, parking</li> <li>Fuel oil tank containment area</li> <li>Fuel oil pump house and truck discharge area</li> </ul>	<p>These rain runoffs are subject to carrying some oil, and will pass through an oil/water separator to free the water from oil traces and release clean water. The oil separated water will be routed to the dirty water recovery pit, so that in the event of an accidental release of oil after the separation process the service water will not be contaminated and damage the demineralized water production plant.</p>
Clean runoff	<ul style="list-style-type: none"> <li>Building roofs</li> <li>Drainage of grass/gravel areas which area not collected with roads ground drainage</li> </ul>	<p>The clean runoff might be subject to carrying minor dust. This water will collect in a stormwater basin to be re-used as raw water after filtration. In the event where the stormwater basin reaches its maximum capacity the runoff will overflow of the site into the natural environment.</p>

As indicated in the table above, the plant will be designed in such a manner that ensures the contaminated storm water is always separated from the clean water. The valve on the inlet of clean storm water basin is normally open, and the valve on the collection pipe is closed. On storm condition, storm water is collected in a separate storm water tank or basin by separate pipelines. Normally, there is no contamination in the non-contaminated area. While on the emergency condition, contamination happens in the non-contaminated area, valve on the inlet of clean storm water basin will be closed

<sup>34</sup> Submitted to DWS and pending decision from DWS



and valve on the connection pipe will be open, storm water will flow to dirty storm water and firefighting wastewater tank(s). A pollution detection device will be set on the clean storm water pipelines to monitor water quality.

*Ash disposal site:*

The ash disposal site will be divided into several ash storage cells, one for each year. They will be separated by bunds and each cell will have its own leachate drainage pipe system. The ash disposal site will be designed for a capacity of approximately 5 years and cover approximately 284 000m<sup>2</sup> (Aurecon, 2017). The compacted clay embankment shall be laid around the disposal site. The height of the compacted clay embankment shall be about 4.0m from the natural ground. Two basin types will be constructed on site – one ash water recovery pond and several clean water recovery ponds. These basins will be emptied by pumps which can operate at the maximum flow required by the water recovery. There will be a priority given to the reuse of ash water, then rain drains and finally use of service water.

Similar to the drainage system in the power station plant, the rain water in the ash disposal site will be routed into different networks depending on the expected quality of runoff. The following areas have been identified.

**Table 7: Different water streams at the ash disposal site (Aurecon, 2017)**

Water Stream	Description
Ash-loaded storm water	<p>This run-off water is subject to carrying a significant amount of dust, coal amongst other heavy metals. This rain water will come mainly from the active ash-storage cell where rain falls directly on the ashes. This effluent will be collected in the drainage pipe and pit of open storage cell.</p> <p>Most of these water (rain and water from spraying ash) will be absorbed by ash and permeate through ash layer, and the rest will flow through the surface of the disposal site and become runoff, occurring during heavy storm. Water absorbed by ash will be evaporated mostly. Permeate through ash layer will be inhibited by HDPE layer in the bottom of disposal site to avoid underground water contamination. This runoff will be sent to the ash water recovery pit, to be reused in the ash dedusting process.</p>
Potentially oily storm runoff	<p>These rain runoffs are subject to carrying some oil, and will pass through an oil/water separator to free the water from oil traces and release clean water. The oil separated water will be routed to the clean water recovery pit for further re-use.</p>
Clean storm runoff	<p>The rain runoff is considered to be clean runoff. This water will be collected in the peripheral drainage built around the closed cells, protected by an impermeable membrane and covered by top soil for landscaping.. These runoffs will then contain no ash and be reused as clean water recovery.</p> <p>A suitable number of basins will be installed to collect these drains and use them as service water for the various water usages of the ash disposal site.</p>



There are two fundamental design requirements for the ash disposal site:

- The site should be able to accommodate the ash generated over the life of project (operating period); and
- Based on the classification of the waste stream, the proposed ash disposal site shall be suitable for the acceptance of hazardous (H:H) waste.

In principle, it is proposed (by ACWA Power) that the landfill be developed in cells (Figure 14) with each cell having the capacity to receive ash for a year. Accordingly, it is proposed to divide the ash disposal liner into 20 individual cells. Each cell would be able to accommodate approximately 1.4million tonnes of waste on average.

The conceptual design of each cell has been prepared based on it being partially constructed beneath the existing restored level of the opencast backfill (rehabilitated land), but with the majority of the waste placed above the restored level in the manner of a traditional land-raise landfill.

The primary leachate collection system for each cell will comprise a network of perforated smooth bore (minimum 200mm diameter) pipes (typically high density polyethylene or polypropylene) embedded in the upper 300mm thick Leachate Collection layer, a collection sump and a side slope riser. The slope riser was adopted to avoid the high construction and maintenance cost of vertical chamber. The secondary leachate collection system is similar to the primary, but with a smaller side slope riser. Conceptual design of the leachate riser and drainage collection chamber is provided in Annexure A (as extracts from the report titled: “*Environmental and Social Impact Assessment Report: Khanyisa Coal Fired Power Station; Emalahleni, Mpumalanga*”, dated March 2012 and compiled by Aurecon).

The capacity of the proposed leachate collection sump (drainage collection chamber) is approximately 80m<sup>3</sup>, which was considered to be adequate given the additional storage capacity within the leachate drainage layer. Further detail regarding the proposed ash disposal site can be referenced in the following documents – Thermal Coal Ash Disposal Site, Feasibility Study (MM, 2011), Volume 4 (available upon request).

**Note: The environmental authorisation has been granted for the Khanyisa IPP and ash disposal sites have. Information in this regard is thus only included for reference purposes. The IWULA / IWWMP submitted in February 2017 for the mentioned project is currently pending for decision by DWS.**

Refer to Annexure A for the designs related to the ash disposal facility.



### **Blaauwkrans Co-disposal Facility and surrounds**

The existing dirty water management system associated with the Blaauwkrans Co-disposal facility was designed to cater for a 1:100 year 24 hour rainfall event. Surface water around the Blaauwkrans Co-disposal facility is monitored at various key sampling sites and at regular intervals to evaluate the effect of and diffuse point source pollution entering and leaving the property (approved Landau Colliery EMPr, 2010). Refer to Figure 14 below for the water management system associated with the Blaauwkrans Co-disposal facility and Khwezela: North - Navigation area(s). The Kopseer Dam collects toe seepage arising from the Blaauwkrans Co-disposal facility, of which a portion of such water is treated at the Navigation Lime Treatment Plant.

The proposed activities to be undertaken at the Blaauwkrans Co-disposal Facility includes:

- The reclamation of a portion of the authorised footprint of the facility; and
- The transportation of the discard material to the DHRP (to be located on the Khwezela Bokgoni mining rights area) (south of the Klippan Co-disposal Facility).

The Landau Colliery Life Extension Project EMPr (not yet approved), provides for the extension of the existing Blaauwkrans Co-disposal Facility that will enable the disposal of discard to continue until 2025. Thereafter, reclamation activities at Blaauwkrans Co-disposal Facility will continue. The storm water management measures required during the reclamation of the facility, will be investigated further during the EIA Phase, taking into account the Khwezela North Colliery's storm water management strategies associated with the facility. Reclamation of the Blaauwkrans Co-disposal Facility for the Khanyisa Coal Supply Project will start in 2019.





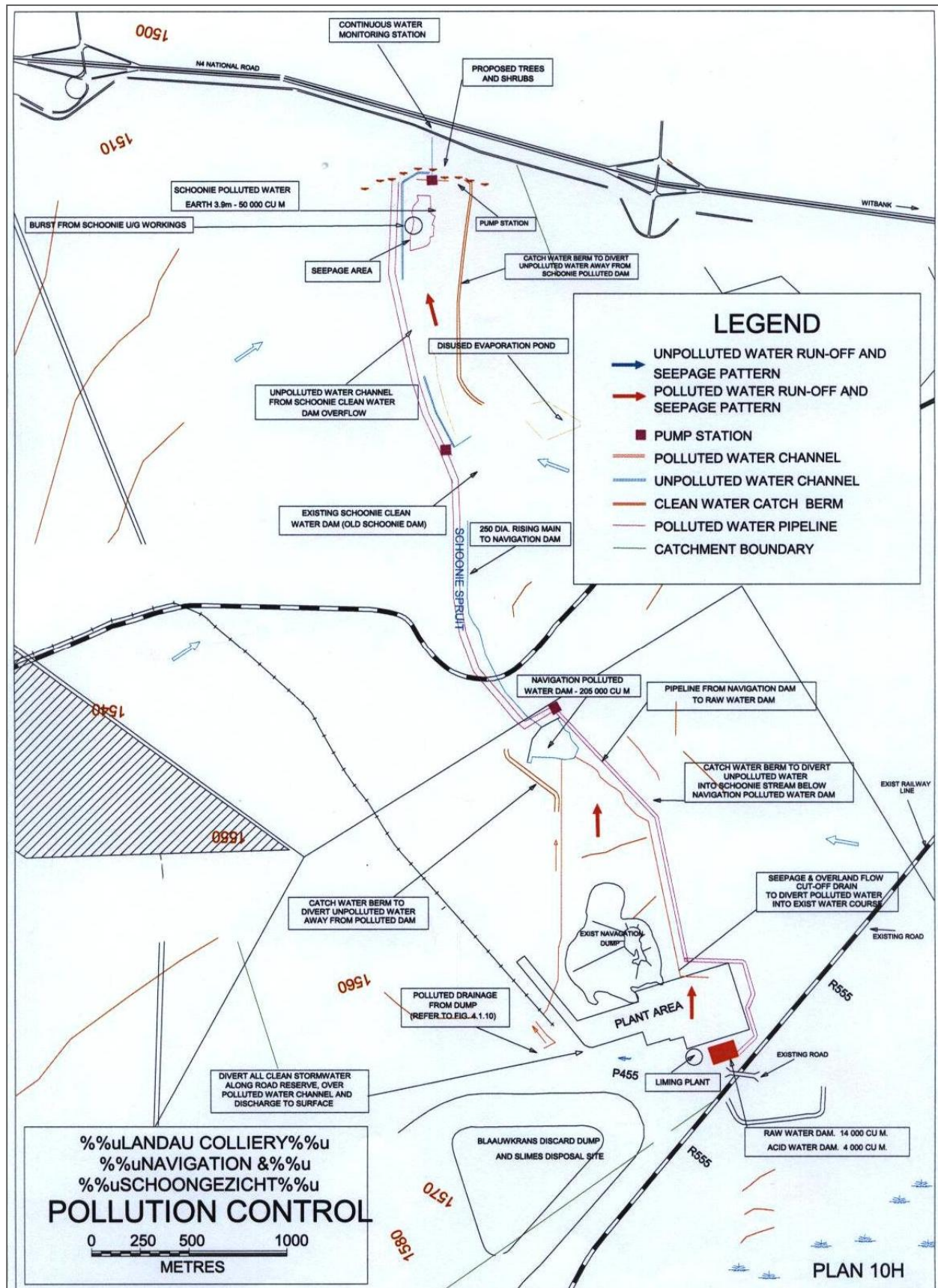


Figure 14: Water management system associated with the Blaauwkrans Co-disposal facility and Navigation Plant area (Clean Stream Environmental Consultants, Landau Colliery EMP, 2010)

#### **4.2.2.5.2 Water supply**

Potable water will be supplied to the project site by means of a connection to the current Khwezela Bokgoni Colliery potable water pipeline running between the Colliery and the Emalaheni Water Treatment Plant (refer to Figure 3). The proposed connection will be made to the current pipeline, on the southern side of the DHRP. The preliminary potable water layout is attached in Annexure A. A series of potable water tanks will also be constructed and operated within the DHRP area (refer to the preliminary potable water layout attached in Annexure A, as well as Figure 4 above).

#### **4.2.2.5.3 Dust suppression**

Dust suppression practices will be undertaken at the following Khanyisa Coal Supply project site(s):

- On roads using process water mixed with a dust suppression agent;
- Within the Plant section (where applicable) utilising process water sprayers; and
- At the tip areas utilising process water sprayers.

#### **4.2.2.6 Non-mineral waste management**

##### ***Industrial and hazardous waste disposal***

Industrial waste from the project area(s) will be collected on a routine basis and sent to a central waste storage and handling area, where it will be sorted and removed off-site. Used oils are to be collected and recycled by a contractor. Hazardous waste will be removed off-site by a licenced hazardous waste contractor to an appropriate hazardous waste disposal site. The management of industrial and hazardous waste will be undertaken in accordance with a documented waste management procedure.

##### ***Domestic waste disposal***

Domestic waste will include amongst other general paper waste, food residue, glass and plastic bags and bottles (if any). Domestic waste from the various project areas will be collected and disposed of at an appropriate local municipal waste disposal facility. The management of domestic waste will be undertaken in accordance with a documented waste management procedure.

#### **4.2.2.7 Power supply**

Power supply for the project will be obtained through the establishment of two 22kV overhead powerlines that will run from the current Eskom Khwezela Bokgoni substation, located in the southern section of the Khwezela Bokgoni boundary area, to the DHRP site. The preliminary drawing showing the proposed route is provided in Annexure A. However, the location of the crossing of the powerlines over the existing provincial road has not yet been finalised. This will be further investigated and





finalised during the EIA Phase. The proposed overhead powerline will run in parallel to the provincial road passing to the east of the Klippan Co-disposal Facility and the proposed DHRP site.<sup>35</sup>

#### 4.2.2.8 Sewage management

Sewage from the DHRP will be treated by means of a Sewage Treatment (Package) Plant that will have a capacity of 25 000 l / day (i.e. 25m<sup>3</sup> / day). Refer to Figure 15 below for the process flow associated with a typical sewage treatment (package) plant. Figures 16 and 17 provides a sketch of the proposed system. The outflow from the system will be sent to the Pollution Control Dam.

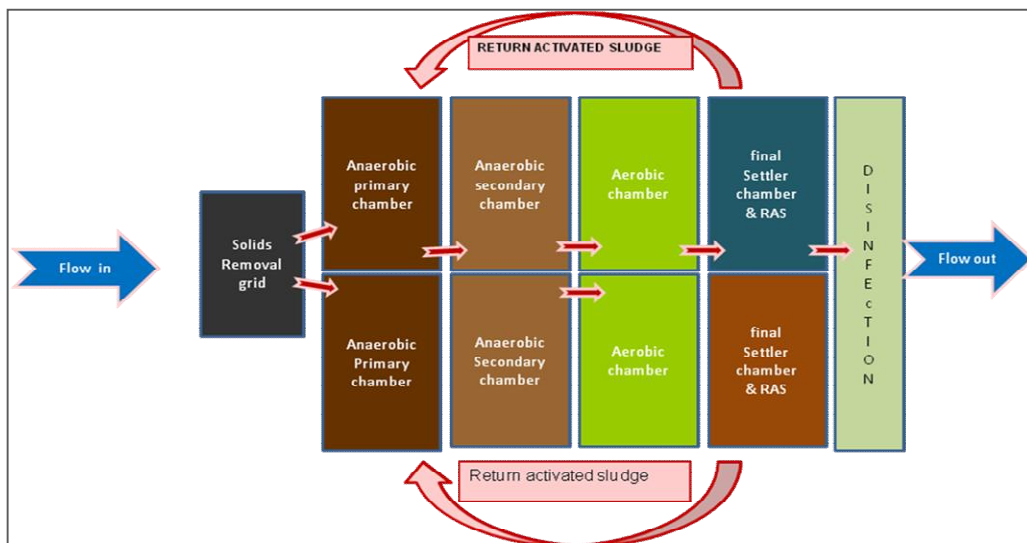


Figure 15: Sewage Plant working parameters (source: Technical Report - Uthingo Environmental Services)

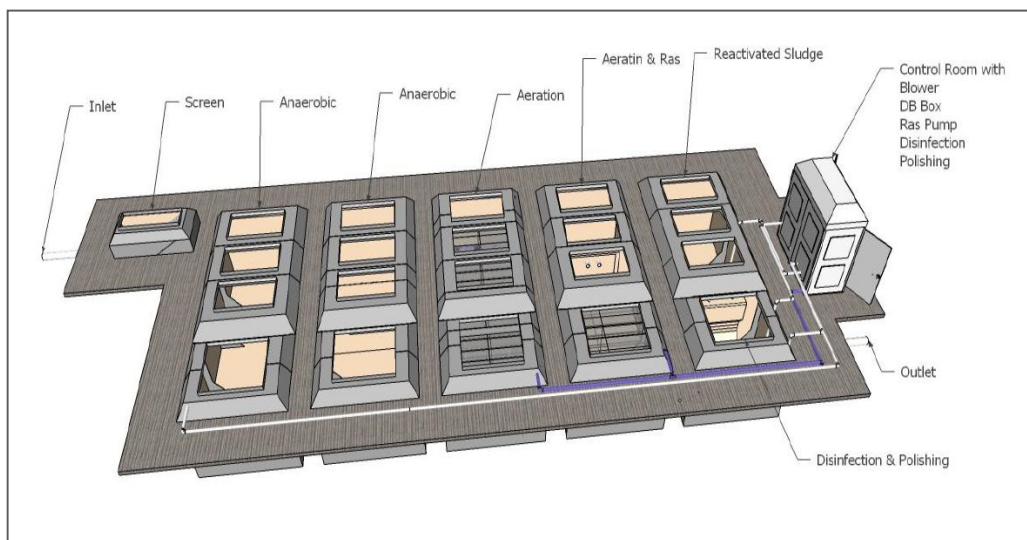


Figure 16: Sewage Plant sketch No 1 (Uthingo Environmental Services)

<sup>35</sup> Transmission and distribution of electricity related listed activities not triggered (as thresholds of capacity and location (i.e. outside industrial complexes) not exceeded (information as provided by Fuelco). Listed activities in terms of a section of the powerline(s) to be located within an CBA, as per the MBSP, have however been included in the environmental authorisation application form submitted to the DMR (refer also to Table 5).

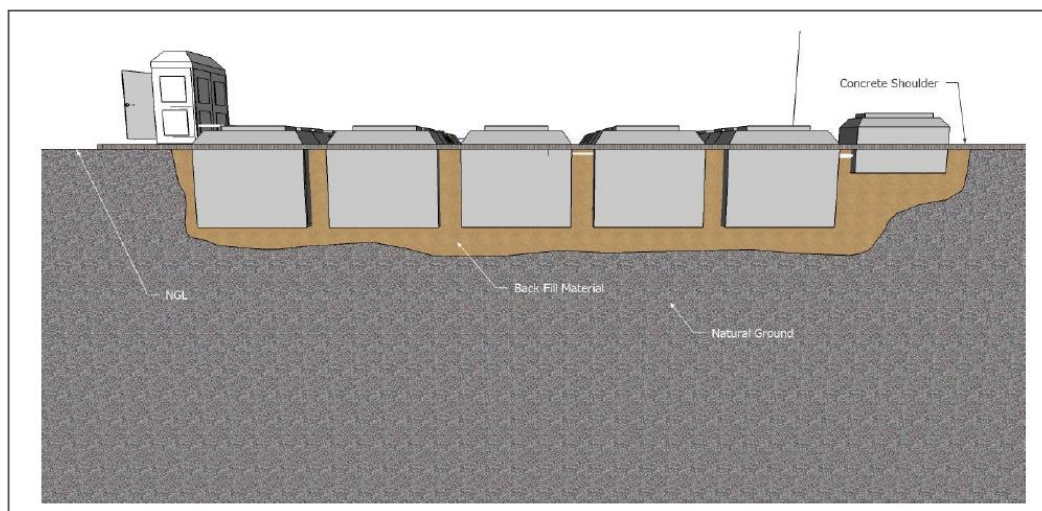


Figure 17: Sewage Plant sketch No 2 (Uthingo Environmental Services)

### 4.2.3 Production rate and Life of Mine

Phase 1: The Coarse discard portion available in this phase was modelled to contain approximately 9 367 929 tons of coarse discard (-150mm). Strip mining in benches of 3m with a final cross-sectional longwall slope of 1:5 would be used and the phase would last approximately 5.5 years at the required feed rate to the DHRP.

Phase 2: The slurry pond would be mined in such a way that its stability and integrity of the design can be ensured. This phase will take another 20.5 years to reclaim a total of approximately 35 500 000 tons of coarse discard and fines, which are split roughly in a ratio of 2:1 - coarse to fines.

Blaauwkrans Co-disposal Facility will be mined for a 30 year life of contract with the coarse discard and fines split at a ratio of 2:1 – coarse and fines.



#### 4.2.4 Estimated reserves

The annual tons for reclamation from both co-disposal facilities are provided in Table 8 below.

Table 8: Annual tons<sup>36</sup>

Year	Maximum Annual Tons	Minimum Annual Tons
Ramp Up	1,344,104	619,720
1	2,635,646	1,317,823
2	2,727,522	1,363,761
3	2,683,665	1,341,833
4	2,711,569	1,355,785
5	2,667,586	1,333,793
6	2,610,287	1,305,144
7	2,766,791	1,383,396
8	2,741,692	1,370,846
9	2,730,178	1,365,089
10	2,669,110	1,334,555
11	2,620,025	1,310,012
12	2,781,766	1,390,883
14	2,759,881	1,379,941
15	2,732,510	1,366,255
16	2,677,363	1,338,681
17	2,628,335	1,314,167
18	2,798,431	1,399,216
19	2,760,457	1,380,229
20	2,741,071	1,370,535
21	2,688,156	1,344,078
22	2,672,871	1,336,435
23	2,801,626	1,400,813
24	2,771,927	1,385,964
25	2,751,913	1,375,957
26	2,701,561	1,350,781
27	2,670,285	1,335,143
28	2,812,868	1,406,434
29	2,782,365	1,391,182
30	2,772,569	1,386,284

<sup>36</sup> Information provided by applicant project team





## 5. Policy and Legislative Context

<p>APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT</p> <p>(A description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process)</p>	<p>REFERENCE WHERE APPLIED</p> <p>(i.e. Where in this document has it been explained how the development complies with and responds to the legislation and policy context)</p>
The Constitution of the Republic of South Africa, 1996	Throughout this Scoping Report.
The Mineral and Petroleum Resources Development Act, 2002 (Act 28 of 2002), as amended.	
GN R527 in GG 26275 of 23 April 2004: The Mineral and Petroleum Resources Development Regulations (GN R527)	
Environment Conservation Act, 1989 (Act 73 of 1989), as amended.	
The National Environmental Management Act, 1998 (Act 107 of 1998), as amended, NEMA.	
GN R982 in GG 38282 of 4 December 2014: The Environmental Impact Assessment Regulations, 2014 (EIA Regulations, 2014) as amended April 2017	Part 4.1 of this Scoping Report
GN R983 in GG 38282 of 4 December 2014: The Environmental Impact Assessment Regulations Listing Notice 1 of 2014 (GN R983) as amended April 2017	
GN R984 in GG 38282 of 4 December 2014: The Environmental Impact Assessment Regulations Listing Notice 2 of 2014 (GN R984) as amended April 2017	
GN R985 in GG 38282 of 4 December 2014: The Environmental Impact Assessment Regulations Listing Notice 3 of 2014 as amended April 2017	Part 6 of this Scoping Report.
GN R891 in GG 38108 of 20 October 2014: Guideline on Need and Desirability in terms of the Environmental Impact Assessment (EIA) Regulations, 2010.	
Mining and Biodiversity Guideline: Mainstreaming biodiversity into the mining sector.	Part 4.2.2.5 and Chapter G of Part 8.4.1 of this Scoping Report.
The National Water Act, 1998 (Act 36 of 1998).	
GN R704 in GG 20119 of 4 June 1999: Regulations on use of water for mining and related activities aimed at the protection of water resources (GN R704).	Part 4.2.2.6 and Part 9.9 and Chapter G of Part 8.4.1 of this Scoping Report.
GN R509 in GG 40229 of 26 August 2016: General Authorisation in terms of Section 39 of the National Water Act,	



1998 for water uses as defined in Section 21(c) and (i) (GN R509)	
GN R267 in GG 40713 of 24 March 2017: Water Use Licence Application and Appeals Regulation, 2017.	Part 4.3 of this Scoping Report
The National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004).	Chapter E, F and M of Part 8.4.1 of this Scoping Report.
National Forests Act, 1998 (Act 84 of 1998)	Chapter E of Part 8.4.1 of this Scoping Report.
GN R598 in GG 37885 of 1 August 2014: Alien and Invasive Species Regulations, 2014 (GN R598)	
Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983) (CARA)	Refer above
The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004).	Chapter J of Part 8.4.1 of this Scoping Report.
GNR 827: The National Dust Control Regulations	
SABS Code of Practice 0103 of 2008: The measurement and rating of environmental noise with respect to land use, health, annoyance and to speech communication. SABS Code of Practice 0328 of 2008: Environmental Noise Impact Assessments.	Chapter K of Part 8.4.1 of this Scoping Report.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended.	Part 4.2 and Part 9.9 of this Scoping Report.
GN R921 in GG 37083 of 29 November 2013: List of waste management activities that have, or are likely to have, a detrimental effect on the environment (GN R921) as amended	
GN R632 in GG 39020 of 24 July 2015: Regulations regarding the Planning and Management of Residue Stockpiles and Residue Deposits, 2015	Part 8.6.3 of this Scoping Report
National Heritage Resources Act, 1999 (Act 25 of 1999), as amended.	Chapter N of Part 8.4.1 of this Scoping Report.
DMR Guideline for Consultation with communities and Interested and Affected Parties. As required in terms of Sections 16(4)(b) or 27(5)(b) of the Mineral and Petroleum Resources Development Act (Act 28 of 2002), and in accordance with the standard directive for the compilation thereof as published on the official website of the Department of Mineral Resources.	Part 8.2; 8.2 and 9.7 of this Scoping Report and Annexure E.
Integrated Environmental Management Information Series. Criteria for determining alternatives in EIA.	Part 8.7 and Part 9.1 of this Scoping Report and Annexure D.
Mpumalanga Nature Conservation Act, 1998 (Act 10 of 1998)	Chapter M of Part 8.4.1 of this Scoping Report.
Mpumalanga Biodiversity Sector Plan	Chapter M of Part 8.4.1 of this Scoping Report.
Various by-laws of the Emalahleni Local Municipality	Chapter O of Part 8.4.1 of this Scoping
Integrated Development Plan for the Emalahleni Local	



Municipality	Report.
Spatial Development Framework for the Emalahleni Local Municipality	
GN R1147 dated 2015: Regulations pertaining to the financial provision for prospecting, exploration, mining or production operations	Part 8.6.3 of this Scoping Report

## 6. Need and desirability of the proposed activities

### 6.1 Need and Desirability in terms of the Guideline on Need and Desirability, dated 20 October 2014.

On the 20<sup>th</sup> of October 2014, the DEA published a Guideline on Need and Desirability (published under GN R891 in GG 38108 of 20 October 2014) in terms of the EIA Regulations. The following table indicates on how the guideline requirement were considered in this Scoping Report.

**Table 9: Need and Desirability of the Proposed Project**

Requirement	Part where requirement is addressed/response
<b>1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?<sup>37</sup></b>	Khwezela Colliery and Greenside Colliery (and thus also the project sites) are situated within the Eastern Highveld Grassland (Mucina & Rutherford 2006). The vegetation type is considered to be endangered nationally with none conserved and 55% altered, primarily by cultivation. The conservation status of this vegetation type is very poor, with large parts that are either currently cultivated or have been previously ploughed, and the remaining untransformed vegetation that occurs as patchy remnants that are often heavily grazed. Vegetation and fauna sensitivity, wetlands and protected areas and conservation planning are described in Chapters E; F; H and M of Part 8.4.1
1.1 How were the following ecological integrity considerations taken into account?	
1.1.1 <i>Threatened Ecosystems.</i> <sup>38</sup>	
1.1.2 <i>Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure.</i> <sup>39</sup>	

<sup>37</sup> Section 24 of the Constitution and section 2(4)(a)(vi) of NEMA refer.

<sup>38</sup> Must consider the latest information including the notice published on 9 December 2011 (Government Notice No. 1002 in Government Gazette No. 34809 of 9 December 2011 refers) listing threatened ecosystems in terms of Section 52 of National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).

<sup>39</sup> Section 2(4)(r) of NEMA refers.





Requirement	Part where requirement is addressed/response
	of this Scoping Report.
1.1.3 <i>Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs).</i>	Refer to Chapter M of Part 8.4.1 of this Scoping Report.
1.1.4 <i>Conservation targets.</i>	
1.1.5 <i>Ecological drivers of the ecosystem.</i>	
1.1.6 <i>Environmental Management Framework.</i>	
1.1.7 <i>Spatial Development Framework.</i>	
1.1.8 <i>Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).<sup>40</sup></i>	<p>On 4 May 2007 the Minister of the DEA (previously the Minister of Environmental Affairs and Tourism) formally declared the eastern part of Gauteng and western part of Mpumalanga an air pollution hotspot, to be known as the “The Highveld Priority Area”, a National air pollution hotspot in terms of Section 18(1) of the National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA). By declaring a priority area, authorities recognise that air quality within these areas are generally regarded as being poor, and frequently meet or exceed ambient air quality standards.</p> <p>The project site is located in the Highveld Priority Area. This implies that authorities may impose measures on the applicant and other mines and industries within this area to allow for improvements in the air quality of the region.</p>
1.2 How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts? <sup>41</sup>	The preliminary potential impacts that have been identified and may occur as a result of the proposed activity has been discussed in Part 8.5 of this document. The impacts will be further discussed and assessed in greater detail as part of the EIR and EMPr.
1.3 How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where	

<sup>40</sup> Section 2(4)(n) of NEMA refers.

<sup>41</sup> Section 24 of the Constitution and Sections 2(4)(a)(i) and 2(4)(b) of NEMA refer.



Requirement	Part where requirement is addressed/response
<p>impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?<sup>42</sup></p>	
<p>1.4 What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?<sup>43</sup></p>	<p>Discard from the DHRP will be disposed of on a proposed discard disposal site (refer to Figure 3), located within the authorised footprint area of the Klippan Co-disposal Facility. Refer also to Section 4.2.2.6 of this Scoping Report for detail with regards to non-mineral waste management.</p>
<p>1.5 How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?<sup>44</sup></p>	<p>A number of heritage surveys were conducted within and around the project site(s) and surrounds. Refer to Chapter N of Section 8.4.1.</p>
<p>1.6 How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?<sup>45</sup></p>	<p>The re-mining of the discard material will not result in a further the destruction of the geological strata.</p> <p>Water supply will be from the current water supply pipeline running between the Khwezela Bokgoni Colliery and the Emalahleni Water Treatment Plant.</p> <p>The impact on natural resources is thus regarded to be low.</p>
<p>1.7 How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures</p>	<p>The potential impacts that may occur as a result of the proposed activity have been preliminarily identified and discussed in Part 8.5. The impacts will be described and assessed in detail as part of the EIR and EMPr.</p>

<sup>42</sup> Section 24 of the Constitution and Sections 2(4)(a)(ii) and 2(4)(b) of NEMA refer.

<sup>43</sup> Section 24 of the Constitution and Sections 2(4)(a)(iv) and 2(4)(b) of NEMA refer.

<sup>44</sup> Section 24 of the Constitution and Sections 2(4)(a)(iii) and 2(4)(b) of NEMA refer.

<sup>45</sup> Section 24 of the Constitution and Sections 2(4)(a)(v) and 2(4)(b) of NEMA refer.



Requirement	Part where requirement is addressed/response
<p>were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?<sup>46</sup></p>	
<p>1.7.1 <i>Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)</i></p>	
<p>1.7.2 <i>Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)</i></p>	
<p>1.7.3 <i>Do the proposed location, type and scale of development promote a reduced dependency on resources?</i></p>	
<p>1.8 How were a risk-averse and cautious approach applied in terms of ecological impacts?<sup>47</sup></p>	<p>A risk-averse and cautious approach will be applied by the undertaking of specialist studies. A conservative approach will be followed in terms of the identification and assessing of environmental impacts associated with the proposed project during the EIA / EMPr phase.</p>
<p>1.8.1 <i>What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</i></p>	<p>Refer also to Part 8.6.3 of this Scoping Report.</p>
<p>1.8.2 <i>What is the level of risk associated with the limits of current knowledge?</i></p>	<p>Based on the project still being in the Scoping phase and a number of studies not having been conducted as yet (will be conducted during the EIA Phase), the level of risk (currently) associated</p>
<p>1.8.3 <i>Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and</i></p>	<p>EIA Phase), the level of risk (currently) associated</p>

<sup>46</sup> Section 24 of the Constitution and Sections 2(4)(a)(vi) and 2(4)(b) of NEMA refer.

<sup>47</sup> Section 24 of the Constitution and Section 2(4)(a)(vii) of NEMA refer.





Requirement	Part where requirement is addressed/response
<i>cautious approach applied to the development?</i>	with the limits of current knowledge can be considered low to medium.
1.9 How will the ecological impacts resulting from this development impact on people's environmental right in terms following: <sup>48</sup>	
1.9.1 <i>Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</i>	
1.9.2 <i>Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</i>	All potential negative and positive impacts associated with the proposed activity have been preliminarily identified and discussed in Part 8.5 below. These impacts will be discussed, assessed and the significance determined in the EIA and EMP.
1.10 Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	
1.11 Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	
1.12 Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations? <sup>49</sup>	Refer to Part 8.1 and Annexure D.
1.13 Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area? <sup>50</sup>	A preliminary determination of the potential impacts associated with the proposed activity has been included in Part 8.5 of this document. These impacts (including the residual and cumulative impacts) will be described and assessed in detail

<sup>48</sup> Section 24 of the Constitution and Sections 2(4)(a)(viii) and 2(4)(b) of NEMA refer.

<sup>49</sup> Section 2(4)(b) of NEMA refer.

<sup>50</sup> Regulations 22(2)(i)(i), 28(1)(g) and 31(2)(1) in Government Notice No. R. 543 refer.



Requirement	Part where requirement is addressed/response
	and the significance determined as part of the EIA and EMP phase of the project.
2.1 What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
2.1.1 <i>The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,</i>	
2.1.2 <i>Spatial priorities and desired spatial patterns (e.g. need for integrated or segregated communities, need to upgrade informal settlements, need for densification, etc.),</i>	Refer to Chapter O of Part 8.4.1 of this document.
2.1.3 <i>Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and</i>	A preliminary determination of the potential impacts associated with the proposed activity has been included in Part 8.5 of this document. These impacts (including the residual and cumulative impacts) will be described and assessed in detail
2.1.4 <i>Municipal Economic Development Strategy ("LED Strategy").</i>	and the significance determined as part of the EIA and EMP phase of the project.
2.2 Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	
2.2.1 <i>Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</i>	
2.3 How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities? <sup>51</sup>	Refer to Chapter O of Part 8.4.1 of this Scoping Report. Note: The proposed Khanyisa Coal Supply project will be a re-mining project additional to the current mining activities undertaken on the Khwezela Bokgoni Colliery.
2.4 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? <sup>52</sup> Will the impact be socially and economically sustainable in the short- and long-term?	The negative and positive impacts that have been preliminarily identified as part of the Scoping Phase have been described in Part 8.5 below. These impacts will be further described in detail, assessed and the significance determined during the EIA and EMP Phase.  The development will be socially- and

<sup>51</sup> Section 2(2) of NEMA refers.

<sup>52</sup> Sections 2(2) and 2(4)(c) of NEMA refers.



Requirement	Part where requirement is addressed/response
	economically sustainable as the Life of the project will be approximately 30 years. During this period, social and economical structures within the local communities will be supported by the project in terms of job creation and social responsibility.
2.5 In terms of location, describe how the placement of the proposed development will: <sup>53</sup>	-
2.5.1 result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	As the proposed activity is an extension of the current mining and related activities, residential opportunities will not be created.
2.5.2 reduce the need for transport of people and goods,	
2.5.3 result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	
2.5.4 compliment other uses in the area,	The main current land use is that of 'mining'.  Local businesses and the existence of settlements and town in close proximity to Khwezela- and Greenside Colliery (and its neighbouring mines) are dependent on the operation of the mines in the area.
2.5.5 be in line with the planning for the area,	The Emalahleni Local Municipality SDF states the following: <i>"Mining activity and electricity generation are major contributors to the local economy. These southern parts of the municipality form part of the Energy Mecca of South Africa, due to its rich deposits of coal reserves and power stations such as Kendal, Matla, Duvha and Kriel. The mining belt also extends northward towards Emalahleni City. This area is thus characterised by conflicting demand between mining, electricity generation and agriculture. The primary objective should be to prevent mining activity from encroaching onto high potential agricultural land and areas of high biodiversity; and to ensure that the areas of mining activity are properly rehabilitated and that the agricultural value of the land be restored once</i>

<sup>53</sup> Section 3 of the Development Facilitation Act, 1995 (Act No. 67 of 1995) ("DFA") and the National Development Plan refer.



Requirement	Part where requirement is addressed/response
	<p><i>the mineral resources are depleted.</i></p> <p><i>The vast majority of land in the Emalahleni Local Municipality is classified as medium and high potential soil. Thus, apart from the mining priority areas, the remainder of the municipal area is earmarked to retain the current dominant agricultural use, including stock farming (sheep and cattle) and maize farming with some irrigated farming along the river drainage basins."</i></p> <p>It should be noted that the Khanyisa Power Plant Project has been authorised by the DEA. Thus the project area associated therewith has been earmarked for electricity generation activities. This project (i.e. Khanyisa Coal Supply Project) is a supplementary project in order to supply the Power Plant with fuel (discard coal).</p>
2.5.6 <i>for urban related development, make use of underutilised land available with the urban edge,</i>	Not applicable.
2.5.7 <i>optimise the use of existing resources and infrastructure,</i>	Khwezela Colliery is an existing mine. The project involves the reclamation of two existing co-disposal facilities. Furthermore, connections to existing infrastructure (pipelines, storm water management measures, return water dams, roads et.) will be made as part of this project.
2.5.8 <i>opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),</i>	
2.5.9 <i>discourage "urban sprawl" and contribute to compaction/densification,</i>	As mentioned above, Khwezela- and Greenside Collieries are existing mines. As the proposed



Requirement	Part where requirement is addressed/response
<p>2.5.10 contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,</p>	<p>project will be an additional activity brought about from the current activities, it is not anticipated that additional urban sprawl, the compaction / densification or impacts on spatial patterns will occur as a result of the project. However, since the project is a supplementary project to the Khanyisa IPP (power plant) activities, the social impacts associated with the IPP project (and possible cumulative impacts of the Coal supply project along with the IPP impacts), should also be taken into account. The report titled: <i>“Proposed independent coal fired power station with associated infrastructure in the Emalahleni area, Social Impact Assessment”</i>, dated September 2011, and compiled by Ptersa Environmental Management Consultants.</p> <p>Existing resources and infrastructure will continue to be used as part of the proposed Coal Supply project as far as possible.</p>
<p>2.5.11 encourage environmentally sustainable land development practices and processes,</p>	<p>Effective environmental management and mitigation of environmental impacts. Refer to Part 9.9. Detailed management and mitigation measures will be included in the EIAR and EMPr.</p>
<p>2.5.12 take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),</p>	<p>The proposed Coal Supply Project location(s) were determined based on the location of the mineral to be re-mined (i.e. co-disposal facilities) as well as the location of existing infrastructure, and distance from the authorised Khanyisa IPP site.</p>
<p>2.5.13 the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),</p>	<p>The current mining operation results in high socio-economic returns. The reclamation of the co-disposal facilities is anticipated to support jobs and livelihoods for a period of 30 years and is thus regarded as having a positive impact in this regard.</p>
<p>2.5.14 impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and</p>	<p>The “sense of place” of the area has also already been impacted on as a result of current mining activities conducted within the area. Therefore, regular passers-by of the area as well as local</p>





Requirement	Part where requirement is addressed/response	
	residents within the area are likely to be desensitised to the mining activities.	
2.5.15 <i>in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?</i>	Refer to 2.5.10 above.  A conservative approach will be followed in terms of the identification and assessing of environmental impacts associated with the proposed project during the EIA / EMPr phase.	
2.6 How were a risk-averse and cautious approach applied in terms of socio-economic impacts? <sup>54</sup>		
2.6.1 <i>What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?<sup>55</sup></i>	<p>The following assumptions are made:</p> <ul style="list-style-type: none"> <li>• That all socio-economic information provided by the applicant and stakeholders regarding the proposed project is correct.</li> <li>• That the mitigation measures proposed in this report and the EMPr are implemented correctly and are effective.</li> <li>• All research/reference sources are accurate.</li> <li>• That there will be no significant changes to the proposed project that could affect the findings and recommendations of this report and the EMPr.</li> </ul> <p>Based on the above descriptions, it is our opinion that the level of risk associated with the limits of current knowledge (in terms of socio-economic aspects) is low.</p>	
2.6.2 <i>What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</i>		
2.6.3 <i>Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?</i>		
2.7 How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	-	
2.7.1 <i>Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</i>	Khwezela and Greenside Collieries are existing mines operating approximately 15km from Emalahleni in the Mpumalanga Province.	
2.7.2 <i>Positive impacts. What measures were taken to enhance positive impacts?</i>	<p>The socio-economic impacts which have been preliminarily identified is that of impacts on the adjacent communities in terms of continued dust and noise generation, and positively job security and sustained livelihoods.</p> <p>The impacts, both positive and negative, will be</p>	

<sup>54</sup> Section 2(4)(a)(vii) of NEMA refers.

<sup>55</sup> Section 24(4) of NEMA refers.



Requirement	Part where requirement is addressed/response
	further described and assessed and the significance determined as part of the EIA and EMP phase of the project.
2.8 Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	The preliminarily identified impacts of the proposed activity are presented in Part 8.5 of this document.
2.9 What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations? <sup>56</sup>	Refer to Annexure D for the Alternatives Assessment Report. The alternatives identified will be assessed further during the EIA phase and will take the "best practicable environmental options" into account.
2.10 What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? <sup>57</sup> Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	
2.11 What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination? <sup>58</sup>	Refer to point 2.6 (of this table) above.
2.12 What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle? <sup>59</sup>	The identification of the potential impacts has been presented in Part 8.5 below. The potential impacts will be further described and assessed in detail and the significance determined as part of the EIA and EMP phase of the project. Mitigation measures will also be provided for each potential impact that may occur, for the Life of Mine

<sup>56</sup> Section 2(4)(b) of NEMA refers.

<sup>57</sup> Section 2(4)(c) of NEMA refers.

<sup>58</sup> Section 2(4)(d) of NEMA refers.

<sup>59</sup> Section 2(4)(e) of NEMA refers.



Requirement	Part where requirement is addressed/response
	(Project).
2.13 What measures were taken to:	-
2.13.1 <i>ensure the participation of all interested and affected parties,</i>	Refer to the Public Participation report attached hereto as Annexure E.
2.13.2 <i>provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,</i> <sup>60</sup>	
2.13.3 <i>ensure participation by vulnerable and disadvantaged persons,</i> <sup>61</sup>	
2.13.4 <i>promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,</i> <sup>62</sup>	
2.13.5 <i>ensure openness and transparency, and access to information in terms of the process,</i> <sup>63</sup>	
2.13.6 <i>ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge</i> <sup>64</sup> , and	
2.13.7 <i>ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted?</i> <sup>65</sup>	Refer to the Public Participation report attached hereto as Annexure E. The Public Participation report presents the details of all I&APs that were identified, how the I&APs were notified and involved in the process, any issues and concerns raised by the I&APs and the final results of the Public Participation Process.
2.14 Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that	The proposed activity will contribute to the minimisation and / or elimination of certain current physical impacts that may contribute to the overall impact on surrounding communities (associated with the existence of the Co-disposal facilities)

<sup>60</sup> Section 2(4)(f) of NEMA refers.

<sup>61</sup> Section 2(4)(f) of NEMA refers.

<sup>62</sup> Section 2(4)(h) of NEMA refers.

<sup>63</sup> Section 2(4)(k) of NEMA refers.

<sup>64</sup> Section 2(4)(g) of NEMA refers.

<sup>65</sup> Section 2(4)(q) of NEMA refers.



Requirement	Part where requirement is addressed/response
is consistent with the priority needs of the local area (or that is proportional to the needs of an area)? <sup>66</sup>	(e.g. in terms of air quality, water management etc.), as well as job security and socio-economic well-being of the area.
2.15 What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected? <sup>67</sup>	All contractors, sub-contractors and workers will attend compulsory environmental awareness training and inductions. This training will highlight the dangers associated with the workplace. Procedures relating to environmental risks will also be put in place and will be regularly updated.
2.16 Describe how the development will impact on job creation in terms of, amongst other aspects:	-
2.16.1 the number of temporary versus permanent jobs that will be created,	The proposed activity will contribute to job security and socio-economic well-being of the area.
2.16.2 whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	
2.16.3 the distance from where labourers will have to travel,	
2.16.4 the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	
2.16.5 the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
2.17 What measures were taken to ensure:	-
2.17.1 that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Refer to the Public Participation report attached hereto as Annexure E. Other government departments are included on the list of I&APs and stakeholders and received the notifications of the proposed activity as well as notifications on the availability of the report for review.  All applicable environmental legislation was considered during the Scoping process.
2.17.2 that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	
2.18 What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will	During the initial Public Participation Process, all issue and concerns raised by the I&APs, stakeholders and the Organs of State are taken

<sup>66</sup> Section 2(4)(g) of NEMA refers.

<sup>67</sup> Section 2(4)(j) of NEMA refers.



Requirement	Part where requirement is addressed/response
serve the public interest, and that the environment will be protected as the people's common heritage? <sup>68</sup>	into account and responses provided.
2.19 Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left? <sup>69</sup>	Mitigation measures for each of the identified impacts will be described in detail in the EIR and EMPr. The proposed mitigation measures will be realistic to protect both the bio-physical and socio-economic environment in both the short- and long-term.
2.20 What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment? <sup>70</sup>	<p>The applicant will be responsible for the costs of any remediation of pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects.</p> <p>The Financial Provision for the proposed project will be included and discussed in detail in the EIR and EMPr.</p>
2.21 Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations? <sup>71</sup>	<p>The alternatives for the proposed project are described in Part 8.1 below. The alternatives will be discussed in greater detail in the EIAR and EMPr and will be assessed in terms of the following four categories:</p> <ol style="list-style-type: none"> <li>1. Environmental.</li> <li>2. Technical/Engineering.</li> <li>3. Economical.</li> <li>4. Social.</li> </ol> <p>Refer to Annexure D for a detailed description of the method that will be utilised in assessing the alternatives for the proposed project.</p>
2.22 Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	The preliminarily identified impacts have been presented in Part 8.5 below. The impacts will be further described and assessed and the significance determined as part of the EIA and EMP phase of project. All residual and cumulative impacts will also be described and assessed in the EIR and EMPr.

<sup>68</sup> Section 2(4)(o) of NEMA refers.

<sup>69</sup> Section 240(1)(b)(iii) of NEMA and the National Development Plan refer.

<sup>70</sup> Section 2(4)(p) of NEMA refers.

<sup>71</sup> Section 2(4)(b) of NEMA refers.

