

BASIC ASSESSMENT REPORT



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

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

SECTION A: ACTIVITY INFORMATION

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

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

1. PROJECT DESCRIPTION

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

Kriel Power Station intends to replace the current electrostatic precipitators (ESPs) with fabric filter plants (FFPs). The main purpose is to reduce particulate emissions to such a degree that the power station can comply to existing and future plant particulate matter limits as set out in the station's Atmospheric Emissions Licence (AEL), by 2020, and to conform to the Minimum Emission Standards for particulate emissions from Solid Fuel Combustion Installations as stipulated in the Government Notice 893, of November 2013. Maximum release rate 125 mg/Nm³ from the 1st of April 2015 to the 31st of March 2020 and further to 50 mg/Nm³.

The Kriel Power Station has a design life expectancy of 50 years, ending 2030, but a possible 60-year operational life expectancy may be likely, ending of the last unit November 2040. This entails an operational phase for the FFP of 10-20 years.

The construction activities are estimated to last for a period of approximately four (4) years. The construction site or workshop and laydown yards will be located between cooling tower 3 and boiler 6 (See Figure 1). This will presumably consist of temporary site offices, ablution facilities and an open laydown area. During the construction phase the following major alterations and additions will be made to the power station:

- A Pipe Rack for Ash Conveying Air pipes will be added;
- The Conveying pipe layout will be changed on top of the Silo;
- The DHP will be upgraded to accommodate new and larger pressure vessels to be installed beneath each of the FFP hoppers. The vessels will be installed on the existing concrete slab under the footprint of the FFP casing.
- New FFP that will be within the footprint of the currently installed ESPs. The FFP casing will be slightly higher than the existing ESP, increasing from 22.8m to 26.7m;
- New Conveying Air Compression House and Substation will be built between the silo and precipitators; and
- A new Cleaning Air Equipment building will be constructed next to boiler 6. It will be 61m x 17m x 13.7m (h) and will be a steel frame concrete building with corrugated iron roof.

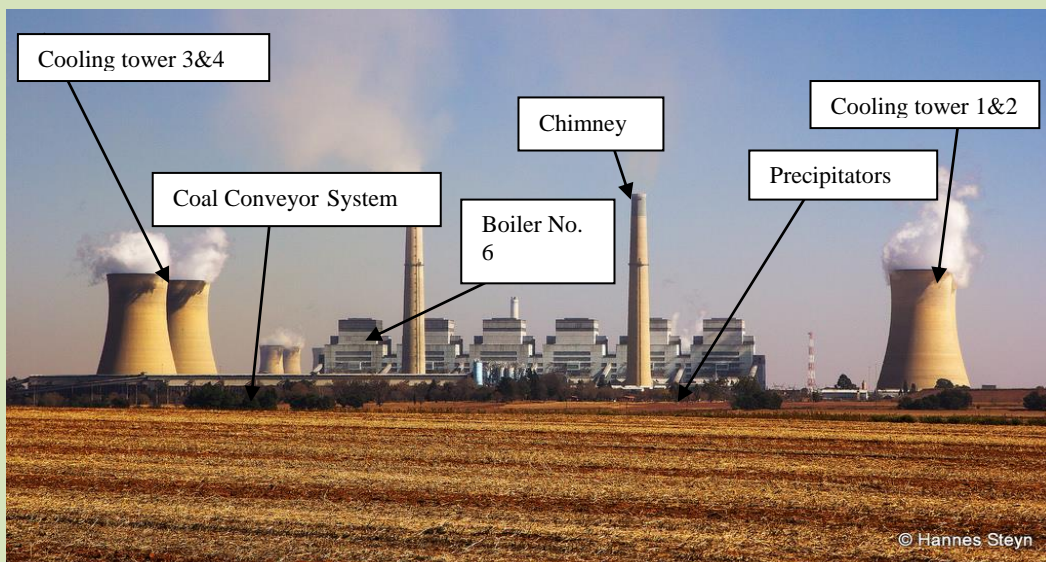


Figure 1: Kriel Power Station

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

Listed activity as described in GN 734, 735 and 736	Description of project activity
<p>Example: GN 734 Item xx xx): The construction of a bridge where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p>	<p>A bridge measuring 5 m in height and 10m in length, no wider than 8 meters will be built over the Orange river</p>
<p>Listing Notice 1, R983 of December, 2014: Activity 34(i): <i>The expansion or changes to existing facilities for any process or activity where such expansion or changes will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions or pollution, excluding-</i> <i>(i) where the facility, process or activity is included in the list of waste management activities published in terms of Section 19 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.</i></p>	<p>The proposed retrofitting of the existing Electrostatic Precipitators (ESPs) with Fabric Filter Plants (FFPs) and Upgrade of Dust Handling Plant (DHP) at Kriel Power Station. The change in air quality abatement technology will result in the need for Eskom to change the station's Atmospheric Emissions Licence.</p>

2. FEASIBLE AND REASONABLE ALTERNATIVES

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

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

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

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

BASIC ASSESSMENT REPORT

The identification of alternatives should be in line with the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Should the alternatives include different locations and lay-outs, the co-ordinates of the different alternatives must be provided. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

Due to the nature of the development, only one site was identified and investigated, thus the preferred site. The following is the summary of this preferred site.

a) Site alternatives

Alternative 1		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>Due to the existing power station infrastructure location (and process requirements) there are no siting alternatives that can be considered as the location of this air quality abatement technology is fitted behind each existing boiler, where ESPs currently exist. This air quality abatement technology is further the most economical solution due to the dependency of the newly installed plant on other non-worked-on areas and systems.</p> <p>In view of continuous improvement of its operations with respect to air quality, Kriel Power Station is motivating the change from ESP to FFP technology.</p> <p><i>Alternative 1 is, the preferred site, is therefore the recommended site for this project.</i></p>	26° 15' 04.979"S	29° 10' 47.725"E

In the case of linear activities: **N/A**

Alternative:

Alternative S1 (preferred)

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

Latitude (S):

Longitude (E):

Alternative S2 (if any)

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

Alternative S3 (if any)

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

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

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

BASIC ASSESSMENT REPORT

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
<p>5 scenarios were investigated for operational purposes. These are:</p> <p>Scenario 1: Normal Operation – Units running at full load and supplying half of the common plant.</p> <p>Scenario 2: Abnormal Condition - Units running at full load and supplying the common plant, with the 11kV substation boards 3&4 connected.</p> <p>Scenario 3: Separate supplies – Station transformer used to supply all the common plant loads and the unit transformers supply unit auxiliaries.</p> <p>Scenario 4A: New Ash Dam 1 – Units running at full load and supplying half the common plant. The New Ash Dam 1 (Dry Concept) loads are added.</p> <p>Scenario 4B: New Ash Dam 2 - Units running at full load and supplying half of the common plant. The New Ash Dam 2 (Wet Concept) loads are added.</p> <p>Scenario 5A: Ash Dam 1 – Station transformer used to supply all the common plant loads and the unit transformers supply unit auxiliaries. Ash Dam 1 (Dry Concept) loads connected.</p> <p>Scenario 5B: Ash Dam 2 – Station transformer used to supply all the common plant loads and the unit transformers supply unit auxiliaries. Ash Dam 2 (Wet Concept) loads connected.</p> <p>It is recommended that all the interventions identified for accommodating Scenario 2, be implemented if the FFP retrofit and DHP upgrade projects are to be executed.</p>	26° 15' 04.979"S	29° 10' 47.725"E
Alternative 2 (N/A)		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3 (N/A)		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Three alternative technologies were considered:

Alternative 1 (preferred alternative)
<p>Fabric Filter Plant (FFP): Removal efficiency of 99.6% (<1 µm), > 99.95% (>10 µm), 0.2 - 3% of electricity generated is used. FFP removes more particulates than ESPs. The FFP bag replacing cost are low, easy maintenance and reliable filter will not stop production due to failures in the FFP.</p> <p>After considering the Alternatives, it was recommended that the Fabric Filter Plant alternative be used since it removes more particulates than both wet scrubber and electrostatic precipitators.</p>
Alternative 2
<p>Electrostatic Precipitators (ESP): Removal efficiency of 96.5% (<1 µm), 99.95% (>10 µm), 0.1 -1.8% of electricity generated is used. It might not work on particulates with very high electrical resistivity.</p>
Alternative 3
<p>Wet Scrubber: Removal efficiency of > 98.5% (<1 µm), > 99.9% (>10 µm), up to 3% of electricity generated is used.</p>

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

N/A

e) No-go alternative

<p>The implementation of the project will reduce the Particulate Matter emissions to meet the station's Atmospheric Emission Licence (AEL) No.: 17/4/AEL/MP312/11/09. In addition, to ensure that the station reduces, prevents and controls particulate matter emissions. This project is part of Eskom's implementation of its Air Quality Management Master Plan. The no go alternative means that the proposed retrofit will not be implemented and the consequences are that:</p> <p>Continued performance on air pollution in the form of particulate matter From the above, it is clear that the No Go Alternative is not a feasible alternative for this project.</p>

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

3. PHYSICAL SIZE OF THE ACTIVITY

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

Alternative:

Alternative A1¹ (preferred activity alternative)
Alternative A2 (if any)
Alternative A3 (if any)

Size of the activity:

1037m ²
N/A
N/A

or, for linear activities:

Alternative: (N/A)

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

Length of the activity:

N/A
N/A

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

BASIC ASSESSMENT REPORT

Alternative A3 (if any)

N/A

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

Alternative: (N/A)

Size of the site/servitude:

Alternative A1 (preferred activity alternative)

N/A

Alternative A2 (if any)

N/A

Alternative A3 (if any)

N/A

4. SITE ACCESS

Does ready access to the site exist?

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

Describe the type of access road planned:

The access road to the site is obtained off the R545 Provincial Road. The access is of acceptable standards and is maintained regularly.
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Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

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

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

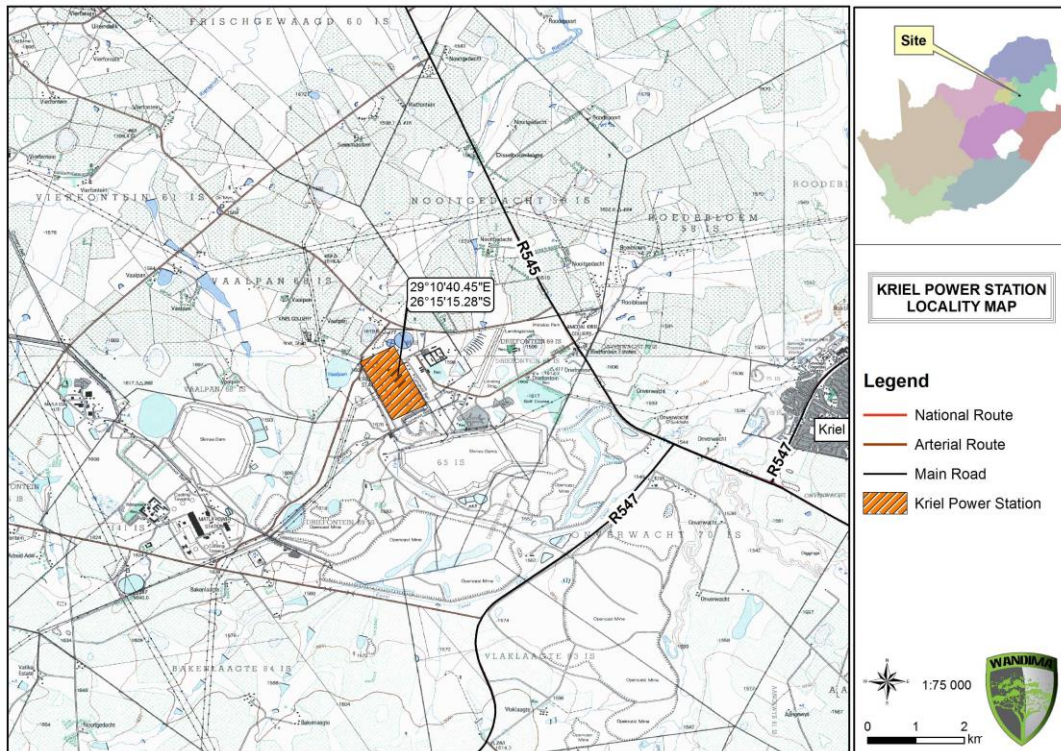


Figure 2: Locality Map

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

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

See Figure 3 below for Site Layout Plan Illustration.

7. SENSITIVITY MAP (N/A)

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

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS);
- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

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

BASIC ASSESSMENT REPORT

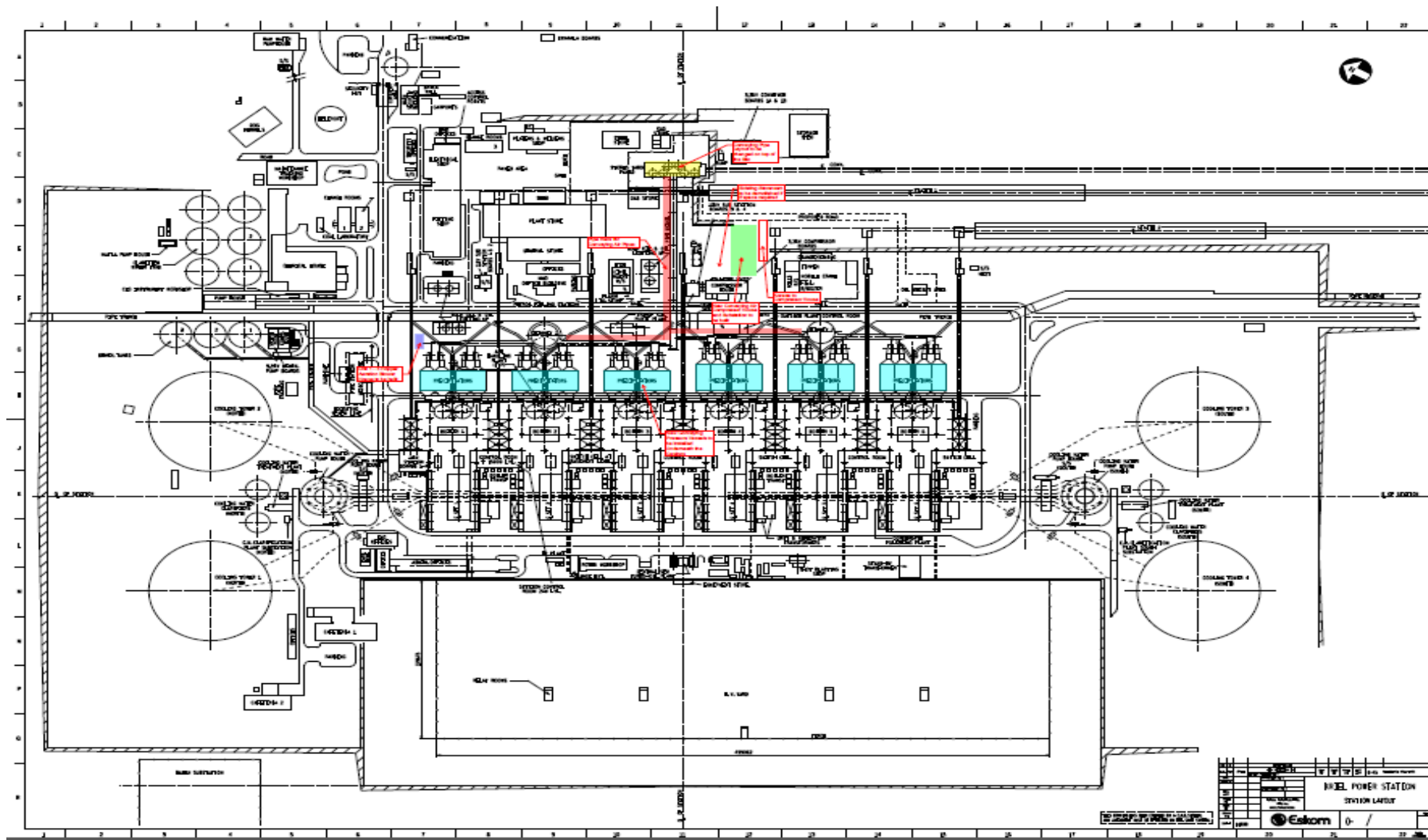


Figure 3: Site Layout Plan

8. SITE PHOTOGRAPHS

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



Figure 4: Kriel Power Station



Figure 5: Pressure Vessel situated under the footprint of the FFP casing



Figure 6: ID Fans to be upgraded at Kriel Power Station



Figure 7: Existing Electrostatic Precipitators at Kriel Power Station

9. FACILITY ILLUSTRATION

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

BASIC ASSESSMENT REPORT

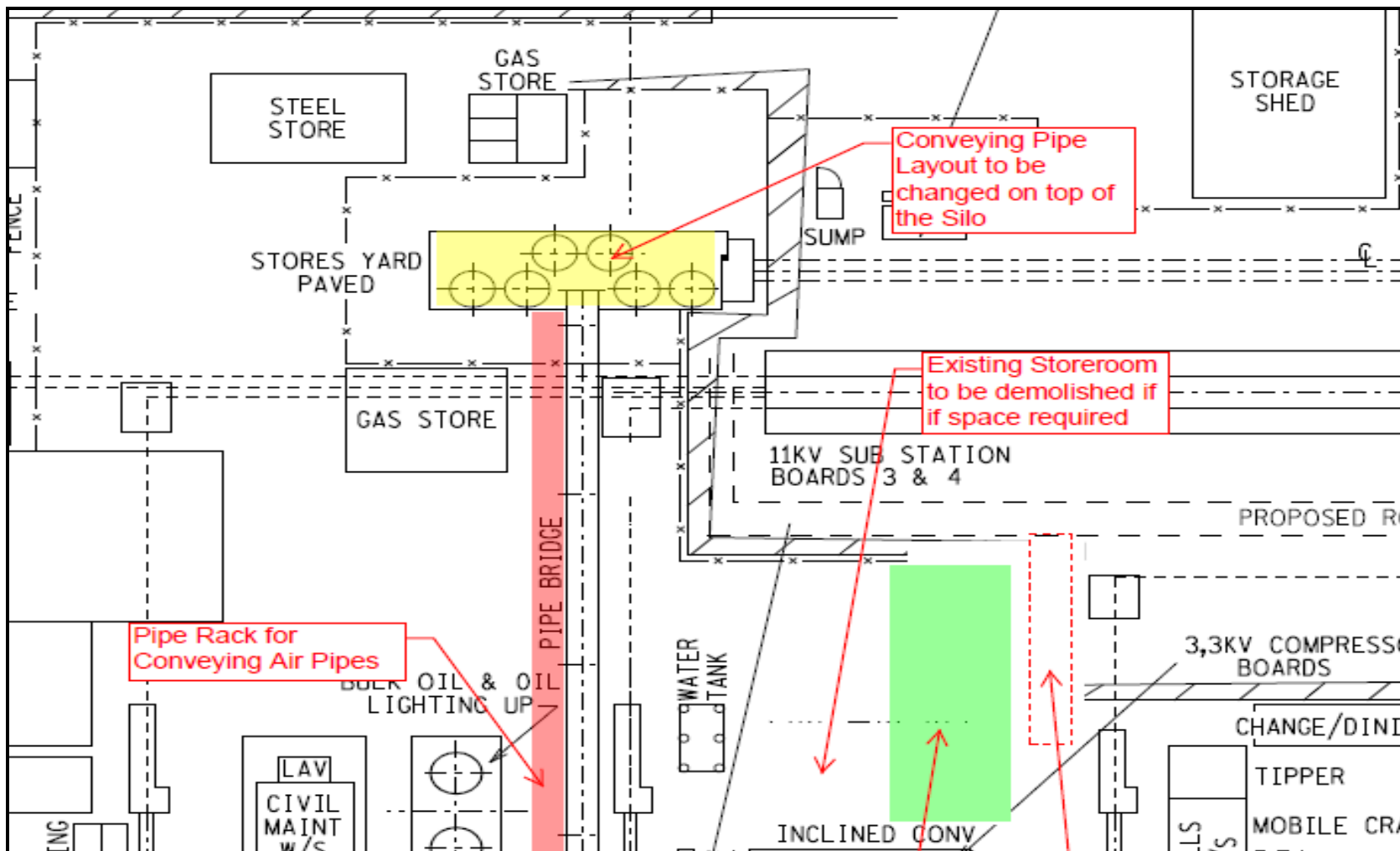


Figure 8 Layout of Upgraded DHP with Chain Conveyors and Bucket Elevator Technology for Two Units

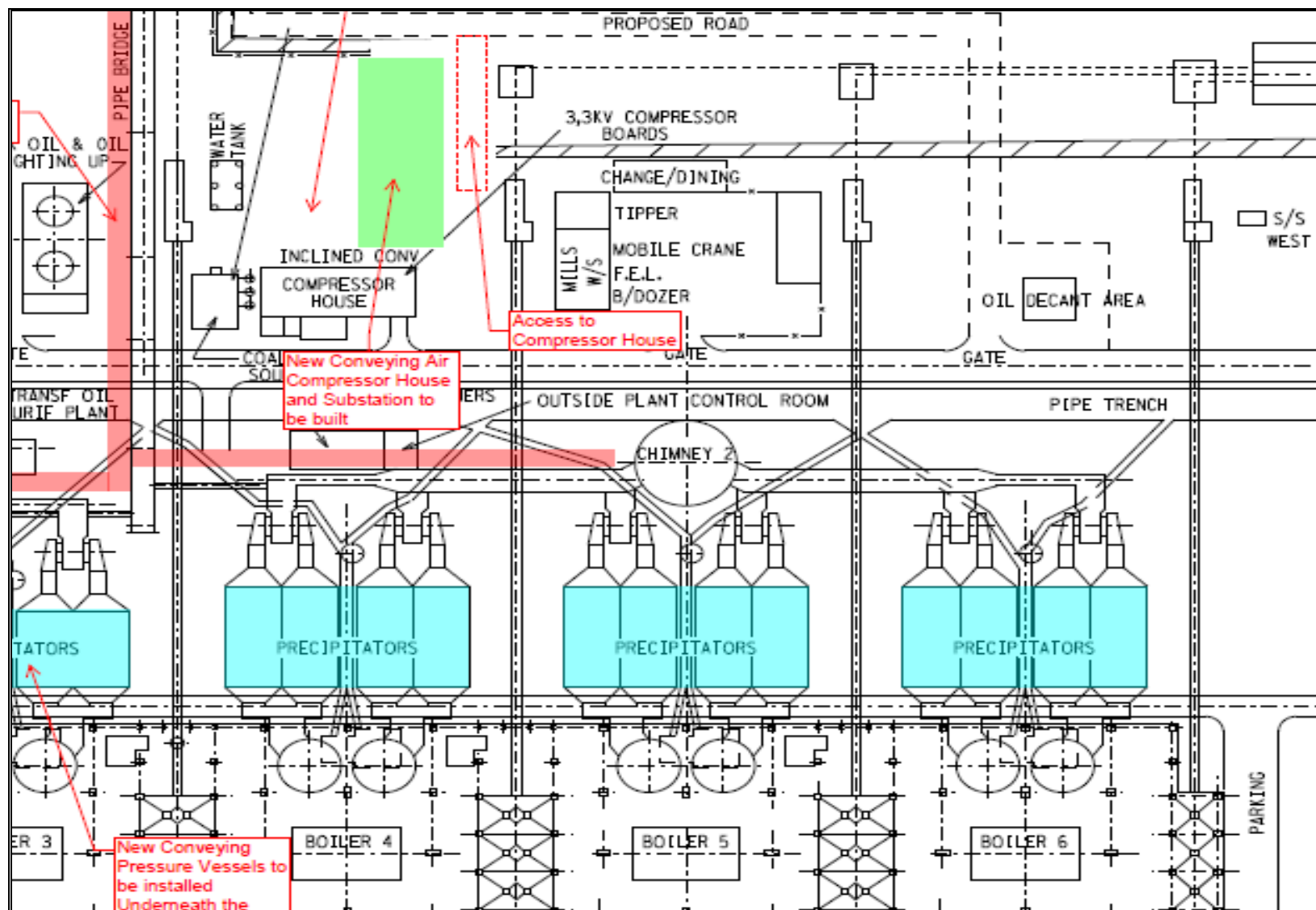


Figure 9: Position of the Compressor House for the Pneumatic DHP

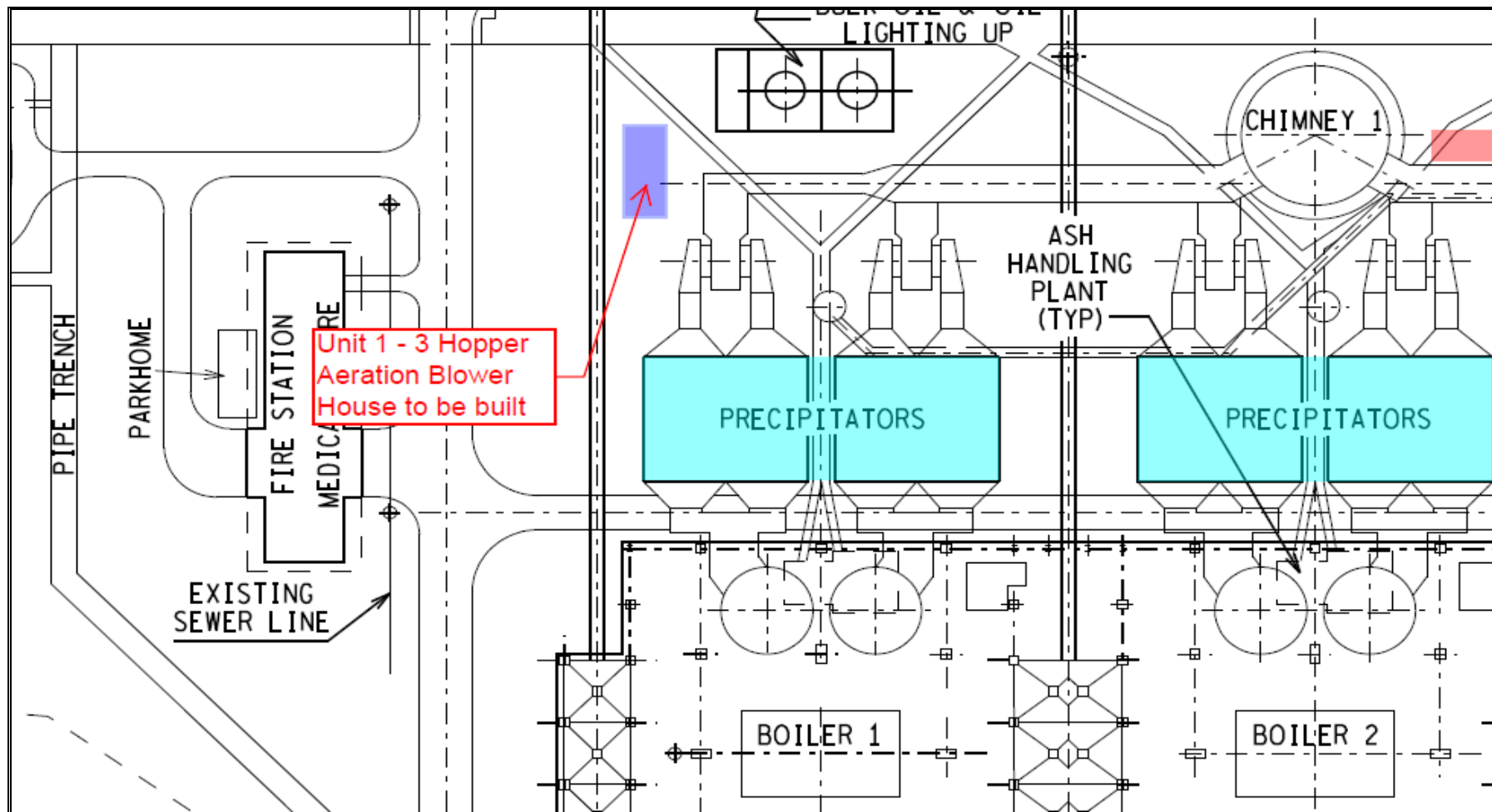


Figure 10: Position of the Blower House for the Aeration System

Figure 9 shows the position of the pneumatic DHP compressor house and the associated substation. Due to the footprint of this building, the existing storeroom situated in this area may be required to be demolished to provide sufficient space. The current DHP utilises a pneumatic handling system. This system transfers ash from the hoppers to a transfer silo and then, from the transfer silo to the main ash silo via pipelines. The upgrade of the DHP will require larger pressure vessels to be installed beneath the hoppers. There will be one (1) pressure vessel that will be installed below each of the twenty four (24) FFP hoppers for Units 1 – 3 and thirty two (32) for Units 4 - 6. The vessels will be installed on the concrete slab that is currently on site. The current transfer silo will be decommissioned and removed, so that the ash will be conveyed directly from the pressure vessels to the main ash silos. All of the pressure vessels will be situated under the footprint of the FFP casing. To convey the ash from the hoppers to the ash silos there will be new piping that will connect the pressure vessels to the inlet of the ash silos. The air supply for the pneumatic conveying will be supplied from a new common compressor house which will supply the air required for all six (6) units; the compressor house will be built together with the associated Substation.

An air aeration system will be installed which will become the primary means of agitating the ash, the aeration system will aerate the ash by supplying air into the ash via aeration pads mounted within the hoppers. The aeration system will have blowers situated within a common blower house that will be constructed near Unit 1. The blowers will supply the air required to agitate the ash within the hoppers. **Figure 10** above shows the position of the blower house for Units 1 - 3, the blowers for Units 4 – 6 will be situated inside the FFP compressor house.

FFP retrofit components

The main purpose of this proposed FFP retrofit at Kriel Power Station is to reduce the particulate emissions to such an extent that Kriel Power Station can consistently comply with the existing and future plant Particulate Matter limits as stated in the station's AEL. Kriel Power Station's current Emissions License limit of 125 mg/Nm³ monthly will be reduced to 50 mg/Nm³ daily by 2020 in the station's AEL.

The FFPs will be retrofitted within the existing footprint of the currently installed ESPs. ID fans will be upgraded for the increased capacity required by the FFP, but also within the existing ID fan footprint.

When retrofitting from ESP to FFP technology a certain amount of instrument and pulse air will be needed. Thus a new centralised Cleaning Air Equipment Building must be constructed. The Cleaning Air Equipment Building will house the compressors required by the FFP technology selected for Kriel Power Station. Cleaning Air will be used to supply the FFP pulse cleaning system with pulse air. Pulsing allows the fabric filter bags to be cleaned, collecting dust in the FFP hoppers which will be removed from the hoppers via the DHP system.

The Cleaning Air Equipment Building will be located next to unit 6. The building will have a length of 61m and a width of 17m. New transformers will be required to supply the cleaning air equipment loads.

The Cleaning Air Equipment Building will include emergency access doors, overhead crane and a loading bay for maintenance. The Cleaning Air Equipment Building will be pressurised to avoid dust accumulating inside the building. The Cleaning Air Equipment Building will be a steel framed concrete building with a corrugated iron roof, so as to look the same as the rest of the compressed air buildings at Kriel Power Station.

ACTIVITY MOTIVATION

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

1. Is the activity permitted in terms of the property's existing land use rights?	YES	NO	Please explain
The proposed retrofitting project will be undertaken on an existing power station infrastructure, where ESPs currently exist. Land use rights will not be changed.			
2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES	NO	Please explain
The Highveld Airshed Priority Area (HPA) was declared by the Minister of Environmental Affairs at the end of 2007, requiring the development of an Air Quality Management Plan for the area. The plan (HPA, 2011) includes the establishment of emissions reduction strategies and intervention programmes based on the findings of a baseline characterisation of the area.			
(b) Urban edge / Edge of Built environment for the area	YES	NO	Please explain
The Power Station falls outside the Urban Edge.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES	NO	Please explain
<p>The Kriel Power Station is within the footprint of the Highveld Priority Area and the Spatial Development Framework. Emission reduction strategies are included for the numerous operations in the area with specific associated targets. Included in this management plan are seven goals, each of which has a further list of objectives that has to be met. The seven goals for the Highveld Priority Area are as follows:</p> <ul style="list-style-type: none"> • Goal 1: By 2015, organisational capacity in government is optimised to efficiently and effectively maintain, monitor and enforce compliance with ambient air quality standards • Goal 2: By 2020, industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values • Goal 3: By 2020, air quality in all low-income settlements is in full compliance with ambient air quality standards • Goal 4: By 2020, all vehicles comply with the requirements of the National Vehicle Emission Strategy • Goal 5: By 2020, a measurable increase in awareness and knowledge of air quality exists • Goal 6: By 2020, biomass burning and agricultural emissions will be 30% less than current • Goal 7: By 2020, emissions from waste management are 40% less than current. <p>Goal 2 applies directly to the Kriel Power Station, the objectives associated with this goal include:</p> <ul style="list-style-type: none"> • Emissions are quantified from all sources. • Gaseous and particulate emissions are reduced. • Fugitive emissions are minimised. • Emissions from dust generating activities are reduced. • Incidence of spontaneous combustion are reduced. • Industrial Air Quality Management (AQM) decision making is robust and well-informed, with necessary information available. • Clean technologies and processes are implemented. 			

BASIC ASSESSMENT REPORT

<ul style="list-style-type: none"> • Adequate resources are available for AQM in industry. • Ambient air quality standard and dust fallout limit value exceeds as a result of industrial emissions are assessed. • A line of communication exists between industry and communities. 			
(d) Approved Structure Plan of the Municipality	YES	NO	Please explain
According to Emalahleni Local Municipality's IDP (2011-2016), the Municipality is able to provide electricity to 96% of its formal households. Therefore electrical supply is one of the goals of the infrastructure planning of the local municipality.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO	Please explain
According to eMalahleni Local Municipality, the infrastructure plan strives to implement infrastructure maintenance and upgrading programmes according to requirements of its Spatial Development Framework. The current problem is illegal connections which cause the electricity infrastructure to be overloaded and explode. Electrical supply is one of the goals of the infrastructure planning of the local municipality.			
(f) Any other Plans (e.g. Guide Plan)	YES	NO	Please explain
Planning in this activity remains the mandate of the client (Eskom Holdings) and therefore currently limited to the scope of work in review.			
3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES	NO	Please explain
The proposed development at eMalahleni Local Municipality is in line with IDP. From Ward 1 to 34, electricity is a leading source of energy for all users followed by candles and gases the lowest source of energy (Source Statistics SA 2011). Access to energy is one of the priorities within the IDP of eMalahleni Local Municipality.			
4.	YES	NO	Please explain
The rapidly growing massive industrial, mining and housing developments resulting in constraints of the network in the Kriel Area requires the strengthening of power supply. With the growing population and developments in the area, this is a societal priority.			
5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES	NO	Please explain
The development does not require services from the municipality.			

BASIC ASSESSMENT REPORT

<p>6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)</p>	YES	NO	Please explain
<p>This development is indicated as one of the priorities identified by the Municipality at District level (the Highveld Priority Area). Kriel Power Station is within the footprint of the Highveld Priority Area. Emission reduction strategies are included for the numerous operations in the area with specific associated targets. Included in this management plan are seven goals, each of which has a further list of objectives that has to be met. Goal number 2 for the Highveld Priority Area is as follows:</p> <ul style="list-style-type: none"> • Goal 2: By 2020, industrial emissions are equitably reduced to achieve compliance with ambient air quality standards and dust fallout limit values <p>Goal number 2 is relevant to Kriel Power Station. A letter from the Municipality will be attached to the Final Basic Assessment.</p>			
<p>7. Is this project part of a national programme to address an issue of national concern or importance?</p>	YES	NO	Please explain
<p>The project only runs within Kriel Power Station. The project will not have any consequence to any of the SIPs or to the National Development Plan. It is a strategic project for Eskom to allow reduction of particulate matter and meet the Atmospheric Licence Limits promulgated in the NEM: Air Quality Act, 2004 (Act NO. 39 of 2004).</p>			
<p>8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)</p>	YES	NO	Please explain
<p>The location factors favour the proposed land use; it is relatively flat. The flat topography enables for ease of work during construction phases, operational and maintenance phases. It also enables minimisation of erosion because of its flat slope enabling better drainage to occur which is unlikely with steep slopes.</p>			
<p>9. Is the development the best practicable environmental option for this land/site?</p>	YES	NO	Please explain
<p>Detailed specialists studies were conducted on the following aspects: Air, Noise and Visual Impact studies to ensure the best environmental option for site location. Given the conservative nature of the assessment, the implementation of the basic good practice management measures recommended in the report will ensure low noise impact levels. From a noise perspective the project may proceed.</p> <p>It is recommended that the FFP retrofit be implemented as an air quality management measure to meet Minimum Emission Standards and to ensure the lowest possible impacts on the surrounding environment. Furthermore, mitigation measures were recommended by the specialist and must be adhered to.</p> <p>The project has been assessed to have no significant visual impacts due to the low sensitivity of observers in the study area, being exposed to an insignificant degree of visual change. The new technology will reduce the current dust particulate emissions from the power station. No reason could be identified why the project should not be authorised based on the assessment of the visual impacts. See attached specialists studies for details in Appendix D3 .</p>			

BASIC ASSESSMENT REPORT

10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES	NO	Please explain
<p>The proposed project will ensure that the station meets the particulate emission licence limit as stated in the Atmospheric Emission Licence. Particle pollution includes "inhalable coarse particles," with diameters larger than 2.5 micrometers and smaller than 10 micrometers and "fine particles," with diameters that are 2.5 micrometers and smaller.</p> <p>Kriel Power Station reduction of particulate emission will result in the following:</p> <ul style="list-style-type: none"> • Reducing respiratory related illness • Reducing air quality pollution <p>In addition, the upgrade of the new Dust Handling Plant (DHP) will ensure that the following problems are eliminated:</p> <ul style="list-style-type: none"> • Ash backlogs • Possible load losses • High emissions • Damage to the Fabric Filter Plant (FFP) 			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO	Please explain
<p>Each project is unique and requires a separate assessment relevant to its needs. However lessons learnt from this project will be highlighted to similar projects. This will ensure that negative impacts are highly minimised and predicated in future projects. The project will also inform more on potential cumulative impacts related with the Power Station; impacts which result from the incremental impacts of individual events, when added to the past, present and foreseeable future events.</p>			
12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO	Please explain
<p>The project is located at Eskom Power Station.</p>			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO	Please explain
<p>The development will occur behind each boiler where ESPs currently exist.</p>			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO	Please explain
<p><i>SIPS 09: Electricity Generation for all.</i> Retrofitting of the ESPs with FFPS and upgrading of dust handling plant will address air quality pollution problems and provide access to electricity for all and support economic development.</p>			
15. What will the benefits be to society in general and to the local communities?	Please explain		
<p>Provision of efficient, reliable electricity supply is part of Eskom's mandate and therefore this project will help boost the performance of the electricity supply in the Kriel area. The proposed activity will reduce particulate emission from the station hence improve air quality in general. Society will benefit in this regard.</p>			
16. Any other need and desirability considerations related to the proposed activity?	Please explain		
<p>The proposed development will reduce the Particulate Matter emissions from the Kriel Power Station due to the installation of a more efficient particulate abatement technology. The improved air quality will be a positive impact for the surrounding area and the environment. The implementation of the new technology will also allow for compliance with the relevant Minimum Emission Standard.</p>			

BASIC ASSESSMENT REPORT

17. How does the project fit into the National Development Plan for 2030?	Please explain
Providing electricity is meant to support sustainable livelihood, to improve living standards and to ensure dignified existence to all people in South Africa. To have a sustainable livelihood requires that every family has an acceptable standard of living within their reach. To provide electricity to the people of South Africa is a supportive service that supports human rights.	

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

- (a) *Section 23 stipulates the promotion of the application of appropriate environmental management tools in order to ensure the integrated environmental management activities. The general objective of integrated environmental management is to: Promote the integration of the principles of environmental management set out in section 2 into the making of all decisions which may have a significant effect on the environment.*
- The applicant took appropriate steps in appointing an independent environmental practitioner to carry out the process of applying for an environmental authorisation in terms of the EIA Regulation through which all the integrated logistics and methodologies are monitored. The application to carry out the investigative/assessment processes was accepted by the Department of Environmental Affairs which oversees the appropriate management of environmental resources. This amounts to a series of processes which are currently being rolled out by the environmental practitioner and the engaged specialists. The findings of all the investigations and analysis to be conducted will determine the decision to be taken by the competent authority in issuing an environmental authorization or rejecting the envisaged activity.
- (b) *Identify, predict and evaluate the actual and potential impact on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impacts and promoting compliance with the principles of environmental management set out in section 2.*
- The purpose of this Basic Assessment Report and accompanying specialists studies reports, which is currently at the stage of a final, is to serve the purpose of filtering and making sure that potential impacts and associated undesired consequences in the environment (both living and non-living), heritage and community are kept at bay or minimized through mitigation or taking appropriate measures against. Positive impacts are also investigated and valued. Specialist's investigations and ultimate development of an Environmental Management Program report (EMPr) showcase the prudent steps being taken in compliance with section 2.
- (c) *Ensure that the effects of activities on the environment receive adequate consideration before actions are taken in connection with them.*
- The investigations and assessments conducted by both specialists and the environmental practitioner through legislative guidance regulate decisions taken towards the rolling out of the activity and such measures are put in place to halt or avoid/deviate from any intended undesired course of action. Activities may not be undertaken if investigations are not in agreement with the end results of such development.
- (d) *Ensure adequate and appropriate opportunity for public participation in decisions that may affect the environment.*
- Land owners, local authorities and other affected parties are part of the process. They were involved from the commencement of the EIA process in accordance with Chapter 6 the NEMA, 107 of 1998 (amended) and the Environmental Impact Assessment Regulations of 2014, and consulted through the media, notices, individually and meetings.
- (e) *Ensure the consideration of environmental attributes in management and decision making which may have significant effect on the environment.*
- The endorsements of the EMPr and directives to come with the Environmental Authorization are the key instruments in making sure that the environment is not compromised during the activity (development) and commissioning.
- (f) *Identify and employ the modes of environmental management best suited to ensuring that the particular activity is pursued in accordance with the principles of environmental management set out in section 2.*
- Procedures for the investigation, assessment and communication of the potential impact of activities must be effective according to NEMA.

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

a) *Development must be socially, environmentally and economically sustainable.*

Socially- the public was informed and involved during various public participation methods such as advertisements in local newspapers, site notices placed throughout study area and through various correspondence channels.

Economical-affordable and cost effective options were investigated.

Environmental- the best environmentally sound alternatives were investigated supported by mitigation measures included in the Environmental Management Programme.

This implies that the following should be considered before there is any development:

- Disturbance of ecosystems with resulting loss of biological diversity;
- Pollution and degradation of the environment;
- Disturbance of landscapes and sites of the nation's cultural heritage;
- Production of waste avoided, minimized, re-used, recycled, or disposed of in a responsible manner;
- Non-renewable natural resources must be used responsibly and equitably and must take into account the consequences of the depletion of the resource;
- The development, use and exploitation of renewable resources and the ecosystems of which they are part must not exceed the level beyond which their integrity is jeopardized;
- A risk-averse and cautious approach, which takes into account the limits of current knowledge about the consequences of decisions and actions, be applied;
- Negative impacts on the environment and on people's environmental rights must be anticipated and prevented, and where they cannot be prevented, minimized and remedied.

b) *Environmental management must be integrated. It must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the best practical environmental option.*

- Stake holders and authorities were invited to participate and get involved in the activity in order that a holistic decision can be taken in all aspects of environmental management to guard against future liabilities.

c) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being be pursued.*

- The end product of this activity is the supply of power which is meant for public consumption and therefore of benefit to consumers as a basic need.

d) *The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*

- Reassuring benefits for the people and ultimate conservation and sustainable development which does not compromise benefits and history for the future generations.

e) *The polluter must pay for the cost of remedying pollution, environmental degradation and adverse health effects*

- The activity does not pose any threat related to pollution, environmental degradation or adverse health effects. An EMP to remedy the possible impacts is in place and negative impacts were investigated with mitigation measures in place.

BASIC ASSESSMENT REPORT

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	Applicability to the project	Administering authority	Date
Constitution of the Republic of South Africa (No. 108, 1996)	Rights of all persons involved.	National Government	1996
Environmental Impact Assessment Regulations, 2014	Consider all possible environmental impacts	Department Environmental Affairs	2014
National Water Act (No. 36, 1998)	Consider possible impacts in water resources and water usage in general.	Department of Water and Sanitation	1998
Section 21 of the National Environmental Management (NEM): Air Quality Act (AQA), No.39 of 2004	Consider possible impacts in air quality especially particulate matter.	Department Environmental Affairs	2004
National Environmental Management: Biodiversity Act(No. 10, 2004)	Consider possible impacts on biodiversity of the area where construction will take place.	Department of Environmental Affairs	2004
Labour Relations Act 66-1995	Labour disputes.	Dept of Labour	1995
National Environment Conservation Act (No 73, 1989)	Consider possible impacts on conservation for the specific area where development will take place.	Department of Environmental Affairs	1989
National Roads Act (No. 7, 1998)	Impacts on the R545 Road and other associated roads.	Department of Public works	1998
Occupational Health and Safety Act (No. 85, 1993)	Worker's Health issues during retrofitting of the FFPs from ESPs.	Department of Labour	1993
Promotion of Access to Information Act (No. 2, 2000)	All documents have to be available for consideration by any I&AP.	All Departments	2000
National Environment Management: Waste Act, 2008 (No 59 of 2008)	Waste will be generated during construction	Department of Environmental Affairs	2008
Electricity Regulation Act (No. 4, 2006) National Environment Management: Waste Act, 2008 (No 59 of 2008)	Ensure reliability of Electricity supply for Kriel areas and surroundings.	Department of Environmental Affairs	2006
EIA regulations as listed in Government Notices R982 and R985 (04 December 2014)	Activities that trigger listed activities have to be registered at DEA and authorisation granted	Department of Environment Affairs	2014

11. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES	NO
-----	----

If YES, what estimated quantity will be produced per month?

Steel
Concrete
Cables
Transformes

68 tones
9 tones
0
0

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

Waste will be disposed of in accordance with Kriel Power Station's waste management procedures. These procedures are attached in **Appendix J**

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

Waste will be disposed of in accordance with the Kriel Power Station's waste management procedures. These procedures are attached in **Appendix J**

Will the activity produce solid waste during its operational phase?

YES	NO
191.54kT	

If YES, what estimated quantity will be produced per month?

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

Waste will be disposed of in accordance with the Kriel Power Station's waste management procedures. These procedures have been attached in **Appendix J**

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

Waste will be disposed of in accordance with the Kriel Power Station's waste management procedures. These procedures have been attached in **Appendix J**

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

Waste will be disposed of in accordance with the Kriel Power Station's waste management procedures. These procedures have been attached in **Appendix J**

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

Can any part of the solid waste be classified as hazardous in terms of the NEM:WA?

	NO
--	----

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

Is the activity that is being applied for a solid waste handling or treatment facility?

	NO
--	----

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

BASIC ASSESSMENT REPORT

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

	NO
--	----

If YES, what estimated quantity will be produced per month?

	N/A
--	-----

Will the activity produce any effluent that will be treated and/or disposed of on site?

	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?

	NO
--	----

If YES, provide the particulars of the facility: **(N/A)**

Facility name:			
Contact person:			
Postal address:			
Postal code:			
Telephone:	Cell:		
E-mail:	Fax:		

Describe the measures that will be taken to ensure the optimal reuse or recycling of waste water, if any:

N/A

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	
-----	--

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

YES	
-----	--

The power station has an existing air quality licence – however the retrofitting of the three ESPs with FFPs will require Eskom to amend their existing air quality licence. An air quality specialist was consulted to identify the impact of the retrofitting activities on air quality. The specialist report is included in **Appendix D**. Also, the competent authority for air quality licencing is being consulted for the amendment of the existing air quality licence. It is important to note that the actual activity (i.e. the FFP retrofit) will not result in the release of emissions.

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

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

N/A

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

	NO
--	----

BASIC ASSESSMENT REPORT

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

e) Generation of noise

Will the activity generate noise?

YES	
YES	NO

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

Describe the noise in terms of type and level:

Noise will be generated by moving vehicles in and out of the power station during construction?.

There is also potential of construction machinery noise during construction phase. The noise generated will generally be classified as low impact and will only last for the duration of the construction phase.

In addition, the baseline acoustic environment was described in terms of the location of NSRs in relation to proposed activities, the ability of the environment to attenuate noise over long distances and existing or pre-development noise levels. The following was found:

- Several individual residential dwellings are located within a few kilometres from the Kriel Power Station. There is also the staff village of the Kriel and Matla Power Stations to the southeast of the site.
- Atmospheric conditions are more conducive to noise attenuation during the day.
- Baseline noise levels are affected by road traffic, mining activities, domestic animals, birds and insects. Noise levels are currently comparable to levels typically found in sub-urban to urban districts except for occasional mining activity noise. Representative day- and night-time as well as 24-hour baseline noise levels of 44.7 dBA, 41.6 dBA and 48.3 dBA, respectively were calculated from survey results.

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
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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:

N/A

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

NO

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

13. ENERGY EFFICIENCY

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

Eskom has an energy efficiency drive within the organization. Within the design processes followed by the organization, multiple considerations are taken on energy efficiencies.

BASIC ASSESSMENT REPORT

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

No alternative energy sources are available for this activity.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

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

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

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

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

YES	NO
-----	----

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

Property description/physical address:

Province	Mpumalanga
District Municipality	Nkangala District
Local Municipality	Emalahleni Local Municipality
Ward Number(s)	N/A
Farm name and number	Kriel Power Station 65-IS
Portion number	N/A
SG Code	T0IS00000000006500000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Industrial

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

Is a change of land-use or a consent use application required?

YES	NO
-----	----

BASIC ASSESSMENT REPORT

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
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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	<input type="checkbox"/>	2.4 Closed valley	<input type="checkbox"/>	2.7 Undulating plain / low hills	<input type="checkbox"/>
2.2 Plateau	<input checked="" type="checkbox"/>	2.5 Open valley	<input type="checkbox"/>	2.8 Dune	<input type="checkbox"/>
2.3 Side slope of hill/mountain	<input type="checkbox"/>	2.6 Plain	<input type="checkbox"/>	2.9 Seafront	<input type="checkbox"/>

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

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

	Alternative S1:		Alternative S2 (if any): N/A		Alternative S3 (if any):N/A	
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.

BASIC ASSESSMENT REPORT

4. GROUNDCOVER

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

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

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

5. SURFACE WATER

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

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

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse. **(N/A)**

6. LAND USE CHARACTER OF SURROUNDING AREA

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

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

BASIC ASSESSMENT REPORT

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

N/A

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

Kriel retrofitting of EEPs to FFPs will not have a negative impact on the mining industry located ± 500 meters from the proposed site. However, the Power Station will help boost electricity demands for the operations of the mines.

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

N/A

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

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

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

7. CULTURAL/HISTORICAL FEATURES

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

YES	NO
Uncertain	

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

Will any building or structure older than 60 years be affected in any way?
Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?

YES	NO
YES	NO

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

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

Level of unemployment:

According to the Municipal Statistics, the unemployment figure is 27.3%.

Economic profile of local municipality:

The municipality is expected to record a GDP of 3.3% per annum over the period of 2011 to 2016. The historic growth is 2.8% per annum. The municipality contributed 17.9% to the provincial economy by 2011.

Level of education:

According to the Municipality Statistics, out of the total population aged 20+ only 5.8% have no schooling, 45.3% have received higher education (tertiary) and have matric certificate.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?	Unknown				
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?	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> </table>	YES	NO	YES	NO
YES	NO				
YES	NO				
Is the activity a public amenity?	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">YES</td> <td style="width: 50%; text-align: center;">NO</td> </tr> <tr> <td style="text-align: center;">YES</td> <td style="text-align: center;">NO</td> </tr> </table>	YES	NO	YES	NO
YES	NO				
YES	NO				
How many new employment opportunities will be created in the development and construction phase of the activity/ies?					

Eskom will go on open-tender for the appointment of a contractor to carry out the construction. These contractors often subcontract. Eskom requires that contractors employ local unskilled labourers to perform non-specialised work.

What is the expected value of the employment opportunities during the development and construction phase?	Unknown
What percentage of this will accrue to previously disadvantaged individuals?	>90%
How many permanent new employment opportunities will be created during the operational phase of the activity?	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. BIODIVERSITY

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

BASIC ASSESSMENT REPORT

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

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA)	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	

b) Indicate and describe the habitat condition on site (N/A)

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	73%	
Near Natural (includes areas with low to moderate level of alien invasive plants)	2%	
Degraded (includes areas heavily invaded by alien plants)	3%	
Transformed (includes cultivation, dams, urban, plantation, roads, etc)	22%	

c) Complete the table to indicate: (N/A)

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

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

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



SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	WITBANK NEWS	
Date published	12 February 2016	
Site notice position	Latitude	Longitude
	26° 15' 04.979"S	29° 10' 47.725"E
	26° 15' 02.814"S,	29° 10' 55.290"E
Date placed	10 February 2016	

Proof of the placement of the relevant advertisements and notices are attached in **Appendix E3**.

2. DETERMINATION OF APPROPRIATE MEASURES

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

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

Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Theodore Shwartz	Farmers Association	ogiesfarm@hotmail.com
Duiker Mining Pty Ltd/ Extrata South Africa (Pty) Ltd	Mining	hmushonga@xtratacoal.co.za kkhunwane@xtratacoal.co.za
Errol Woodhouse (EXXARO Mpumulanga)	Mining	Errol.Woodhouse@exxaro.com
Thomas Mnguni	Residents Association	greatermiddleburgra@hotmail.com

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

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

A detailed list of contacted and registered I&APs is attached as **Appendix E1** on the PPP Report.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP

No issues were raised at the time of release of the Draft BAR Stage.

4. COMMENTS AND RESPONSE REPORT

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

The were no comments received from I&APs before the submission of the Draft BAR

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Department of Agriculture, Rural Development, Land and Environmental Affairs (EIA Section)	Ms. Charity Mthimunye	013 692 6300			
Department of Health	Mrs. Annamarie von Broskel	013 752 2660			
Department of Mineral Resources	Ms. Martha Seshweni	073 211 3915			
Emalahleni local Municipality	J. Nkabinde	013 690 6350			
Nkangala District municipality	Vusi Mahlangu	013 249 2164			

Proof that the Authorities and Organs of State received written notification of the proposed activities is attached in **Appendix E8**.

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

6. CONSULTATION WITH OTHER STAKEHOLDERS

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

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

A list of registered I&APs is included as **Appendix E2**.

Copies of correspondence, e-mails reminding State Department and I&APs about lapsing of DBAR review period is attached in **Appendix E9**.

SECTION D: IMPACT ASSESSMENT

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

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

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

Activity	Impact summary	Significance	Proposed mitigation
Alternative 1 (preferred alternative)			
GN R983: 34(i)	Direct impacts: Noise Pollution: Loud noise damages the hair cells inside the cochlea. The Louder the noise and the longer you are exposed the worse the damage can be and the more your hearing can be affected.	High	At 80dB up to 85dB hearing protection must be available. Eskom will supply the necessary hearing protection such as ear plugs, canal caps, and ear muffs to the employees and contractors.
	Indirect impacts: Pollution of substrate: Contamination of soil and water due to fuels seepages from storage facilities and refuelling pumps from vehicles Pollution and spillages of hazardous waste	Medium	Soil and water contamination due to spillages might result. Therefore, storage and refuelling area should be designated to a specific concrete floor site and berms / bunding walls and drip trays should be built around such facilities.
	Cumulative impacts: Saturation of topsoil and long term contamination of water with fuels leaking from used containers resulting in "dead soil and water".	High	Empty grease, diesel, hydraulic oil and petrol should be disposed of at a licensed hazardous facility.
	Direct impacts: <ul style="list-style-type: none"> Visual impacts. 	Medium	Structures of lower visibility should be utilised in the retrofitting of EEP with FFPs. Unnecessary earthmoving should be avoided.
	Indirect impacts: <ul style="list-style-type: none"> Transformation of landscape 	Low	The use of existing access roads, and disturbed areas will alleviate unanticipated impacts resulting from the activity.
	Direct Impacts: air quality and generation of dust pollution.	High	Speed limit must be enforced in all areas to limit the levels of dust pollution and noise. Vehicles used on, or entering the site must be serviced regularly to ensure that they do not emit excessive smoke or fumes. No refuse waste is to be burned on the premises or on surrounding premises.
	Direct impacts:	High	The retrofitting of the ESP with FFPs is important for reliable and continued electrical supply in the Kriel area and reduces particulate matter pollution.

BASIC ASSESSMENT REPORT

1. **POTENTIAL IMPACTS DURING CONSTRUCTION.**

Table 1: Assessment of predicted impacts before mitigation measurements are applied in the construction phase.

ISSUE	NATURE OF IMPACT	EXTENT / LOCATION	DURATION	MAGNITUDE / INTENSITY	PROBABILITY	SIGNIFICANCE	DIRECT / INDIRECT / CUMULATIVE	STATUS
Topography & Geology	Flat – Moderate. Erosion.	Local	Short term	Low	Probable	Low	Direct	Negative
Surface & Ground water quality	Possible leaks, spillage of hydraulic oils, diesel and grease.	Site	Short term	Medium	Definite	Medium	Direct	Negative
Waste Management	Construction material created with retrofitting of ESPs to FFPS.	Site	Short term	Low	Definite	Medium	Direct	Negative
Air Quality	Dust during construction by construction vehicles.	Site	Short term	Low	Probable	Low	Direct	Negative
Noise Pollution	Malfunction of vehicles. Noisy workforce.	Site	Short term	Low	Unsure	Low	Indirect	Negative
Visual	Retrofitting of ESPs to FFPS	Local	Short term	Medium	Definite	Low	Indirect	Negative
Socio-Economic	Job creation and local economic impact.	Local	Long term	High	Definite	High	Direct	Positive
	Undisciplined workers.	Local	Short term	Low	Definite	Medium	Indirect	Negative
	Traffic and neighbourhood disruptions.	Site	Short term	Medium	Probable	Medium	Direct	Negative

BASIC ASSESSMENT REPORT

Table 2: Suggested management actions to mitigate possible negative impacts during construction phase.

ISSUE	POTENTIAL IMPACT	MANAGEMENT ACTIONS	MONITORING OF IMPACTS
Surface & Ground Water Quality	<ul style="list-style-type: none"> Possible leaks, spillage of hydraulic oils, diesel and grease from heavy machinery. 	<ul style="list-style-type: none"> Inspect machinery and equipment for possible leaks and malfunction. Refuelling should be designated to a specific concrete site. Refuelling site has to be more than 200m from a stream, drainage line or wetland. Empty grease, diesel, hydraulic oil and petrol should be disposed of at a licensed hazardous facility. 	<ul style="list-style-type: none"> Inspect and maintain equipment on a daily basis. Regular checking of diesel tanks. Regular removal of empty drums.
Waste Management	<ul style="list-style-type: none"> Waste can be created during the construction phase in the form of excess concrete, cement bags. Workers can litter during lunch times. 	<ul style="list-style-type: none"> After the construction of poles, all waste has to be removed to a registered landfill site. Workers have to take all their waste with them after lunch. All waste to be removed on a daily basis. 	Inspection by ESKOM personnel and the ECO.
Air Quality	<ul style="list-style-type: none"> Dust can be generated during excavation due to hard rock. 	<ul style="list-style-type: none"> Workers should wear designated Personal Protective Equipment (PPE). 	Daily monitoring of covered areas. Adherence to PPE by the workforce.
Noise Pollution	<ul style="list-style-type: none"> Movement of equipment and inspection by management. 	<ul style="list-style-type: none"> Regular servicing of vehicles to prevent high pitched roars 	Daily monitoring of vehicles.
	<ul style="list-style-type: none"> Noise created by workers when travelling to and from sites. 	<ul style="list-style-type: none"> Construction workers should be alerted not to scream or hoot at the public or near residential areas. 	No monitoring needed
Visual	<ul style="list-style-type: none"> The establishment of the site office and FFPs will be visually exposed and can have a possible negative impact on the environment. 	<ul style="list-style-type: none"> Restrict to already existing infrastructure. 	No monitoring needed

BASIC ASSESSMENT REPORT

ISSUE	POTENTIAL IMPACT	MANAGEMENT ACTIONS	MONITORING OF IMPACTS
Socio-Economic	<ul style="list-style-type: none"> • Job creation and local economic impact. 	<ul style="list-style-type: none"> • First preference to be given to locals where possible. 	No monitoring needed.
	<ul style="list-style-type: none"> • Undisciplined Workers 	<ul style="list-style-type: none"> • Workers have to be provided with a code of conduct to address the required standards in terms of team member's behaviour and not to insult the public. • Workers should have an allocated site for lunch. • Smokers should not discard life cigarette buds to prevent fire risk. • Access control at camp site to protect equipment and property. 	No monitoring needed.

BASIC ASSESSMENT REPORT

POTENTIAL IMPACTS DURING THE OPERATIONAL PHASE.

Table 3: Assessment of predicted impacts before mitigation measurements are applied in the operational phase.

ISSUE	NATURE OF IMPACT	EXTENT / LOCATION	DURATION	MAGNITUDE / INTENSITY	PROBABILITY	SIGNIFICANCE	DIRECT / INDIRECT / CUMULATIVE	STATUS
Surface or Ground water quality	Possible leakage of oil, grease on site leading to surface and groundwater pollution.	downstream	Long term	Low	Unsure	Low	Indirect	Negative
Waste management	Minimum waste will be created during inspections/surveys.	Local	Long term	Low	Unsure	Low	Direct	Negative
Visual	Establishment of a site office and retrofitting of ESPs to FFPs	Local	Long term	High	Definite	Medium	Direct	Negative
Social Impacts	Undisciplined workers	Site	Long term	Medium	Definite	Medium	Direct	Negative
	The quality of life of the residents that will receive electricity will improve dramatically.	Local	Long term	High	Definite	High	Direct	Positive
Air Quality	Dust generated during excavation.	Local	Long term	Low	Definite	High	Direct	Negative
Noise Pollution	Movement of equipment and inspection by management.	Local	Short term	Medium	Definite	High	Direct	Negative

Table 4: Suggested management actions to mitigate possible negative impacts during operational phase.

ISSUE	POTENTIAL IMPACT	MANAGEMENT ACTIONS	MONITORING OF IMPACTS
Surface & Ground Water quality	<ul style="list-style-type: none"> Possible leaks, spillage of hydraulic oils, diesel and grease from heavy machinery during maintenance. 	<ul style="list-style-type: none"> Inspect machinery and equipment for possible leaks and malfunction. 	Inspect and maintain equipment before a maintenance trip.
Waste management	<ul style="list-style-type: none"> Waste can be created during the maintenance. 	<ul style="list-style-type: none"> All possible waste has to be removed from the site after a maintenance survey. Workers have to take all their waste with them after lunch. 	Inspection of ESKOM personnel after maintenance team was on site.
Air Quality	Dust can be generated during excavation.	<ul style="list-style-type: none"> Vehicles have to drive slowly to create less dust. 	Daily Monitoring.

BASIC ASSESSMENT REPORT

ISSUE	POTENTIAL IMPACT	MANAGEMENT ACTIONS	MONITORING OF IMPACTS
		<ul style="list-style-type: none"> • Workers should wear designated Personal Protective Equipment (PPE). • Record Keeping, Environmental Reporting and community Liaison. 	
Noise pollution	<ul style="list-style-type: none"> • Movement of equipment and inspection by management. 	<ul style="list-style-type: none"> • Regular services of vehicles to prevent high pitched roars • Employers must do a risk assessment if employees could be exposed to loud noise. 	Daily monitoring of vehicles.
	<ul style="list-style-type: none"> • Noise created by workers when travel to and from sites. 	<ul style="list-style-type: none"> • Construction workers should be alerted not to scream or hoot at the public or near residential areas. 	No monitoring needed
Visual	Visibility of established site office and retrofitting of ESPs to FFPs	<ul style="list-style-type: none"> • Restrict retrofitting to already existing infrastructure. 	No monitoring needed
Socio-economic	Undisciplined staff/workers	<ul style="list-style-type: none"> • Workers have to be provided with a code of conduct to address the required standards in terms of team member's behaviour and not to insult the public. • Workers should have an allocated site for lunch. • Smokers should not discard life cigarette buds to prevent fire risk. 	Regular training of workers.

BASIC ASSESSMENT REPORT

2. ENVIRONMENTAL IMPACT STATEMENT

Environmental Impact Statement

ALTERNATIVE 1 (PREFERRED ALTERNATIVE)							
Phase	Nature of Impact	Extent	Duration	Intensity/ Severity	Probability/ Certainty	Significance	
						Before	After mitigation
Planning							
	Land use	Site	Long term	Low	Definite	Low	Low
	Locality	Site	Long term	Low	Definite	Low	Low
Construction							
	Surface & groundwater quality	Site	Short term	Medium	Definite	Medium	Low
	Waste management	Site	Short term	Low	Definite	Medium	Low
	Air quality	Site	Short term	Low	Probable	Low	Low
	Noise	Site	Short term	Low	Unsure	Low	Low
	Visual impacts	Local	Short term	Medium	Unsure	Low	Low
	Social Impact	Local	Short term	Medium	Definite	High-Medium	Low
Operational							
	Surface & groundwater quality	downstream	Long term	Low	Unsure	Low	Low
	Waste management	Local	Long term	Low	Unsure	Low	Low
	Visual impacts	Local	Long term	High	Definite	Medium	Low
	Social impact: Work force	Site	Short term	Medium	Definite	Medium	Low
	Social Impacts: available electricity	Local	Long term	High	Definite	High	No mitigations

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

3. SPECIALIST RECOMMENDATIONS

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

Alternative 1(preferred alternative)

According to the **Air Quality Specialist**, the preferred site is recommended because it is implemented at the existing footprint, inside the boiler, where ESPs currently exist. The simulated FFP retrofit to the Kriel Power Station units would reduce the impact of PM₁₀ from the stacks (only) by 99.6% (<1 µm), > 99.95% (>10 µm). Before and after the retrofit the simulated annual PM₁₀ concentrations (due to stack emissions only) were predicted to be a maximum of 0.90 µg/m³ and 0.52 µg/m³ respectively. Therefore, the particulate matter will be reduced. It is recommended that the FFP retrofit be implemented as an air quality management measure to meet Minimum Emission Standards and to ensure the lowest possible impacts on the surrounding environment. Furthermore, mitigation measures were recommended by the specialist and must be adhered to.

The **Noise Specialist** stated that the extent of noise impacts as a result of an intruding noise depends largely on existing noise levels in the project area. Higher ambient noise levels will result in less noticeable noise impacts and a smaller impact area. The opposite also holds true. Increases in noise will be more noticeable in areas with low ambient noise levels. In addition, shielding effects due to infrastructure (with the exception of the boiler building) and land topography were also not taken into account adding to another conservative aspect in the simulated noise levels. Given the conservative nature of the assessment, the implementation of the basic good practice management measures recommended in this report will ensure low noise impact levels. From a noise perspective the project may proceed.

According to the **Visual Impact Study**, it addresses potential direct, indirect, cumulative and residual visual impacts that can be expected from the proposed project's construction and operation. The project has been assessed to have no significant visual impacts due to the low sensitivity of observers in the study area, being exposed to an insignificant degree of visual change. The new technology will reduce the current output of dust particulate emissions from the power station. No reason could be identified why the project should not be authorised based on the assessment of the visual impacts.

Alternative B

N/A

Alternative C

N/A

No-go alternative (compulsory)

In the event that the existing ESPs in Units 1, 2, 3, 4, 5 and 6 are not retrofitted to new Fabric Filter Plants the status quo will remain and Kriel Power Station will not be able to meet the more stringent particulate Minimum Emission Standards.

BASIC ASSESSMENT REPORT

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
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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.

From the analysis and proposed mitigations as provided by the specialist assessment reports and other site impact assessments, it is the opinion of the EAP that the proposed project will have minimal negative impacts and therefore, it is recommended for implementation. It is however recommended that the mitigation measures presented in the Environmental Management Programme (EMPr) be fully implemented.

Is an EMPr attached?

YES	NO
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The EMPr must be attached as **Appendix G**.


The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

Manqoba Dlamini

NAME OF EAP



SIGNATURE OF EAP

July 20, 2016

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information