PROPOSED HENDRINA WET ASH DISPOSAL FACILITY EXTENSION

VISUAL IMPACT ASSESSMENT

Produced for:

ESKOM

Produced by:

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On behalf of:

Lidwala
Specialist Solutions

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1. INTRODUCTION

1.1. Background

MetroGIS (Pty) Ltd, specialising in visual assessment and Geographic Information Systems, undertook this visual assessment in collaboration with V&L Landscape Architects CC.

Lourens du Plessis, the lead practitioner undertaking the assessment, has been involved in the application of Geographical Information Systems (GIS) in Environmental Planning and Management since 1990.

The team undertaking the visual assessment has extensive practical knowledge in spatial analysis, environmental modelling, and digital mapping, and applies this knowledge in various scientific fields and disciplines. The expertise of these practitioners is often utilised in Environmental Impact Assessments, State of the Environment Reports and Environmental Management Plans.

The visual assessment team is familiar with the "Guidelines for Involving Visual and Aesthetic Specialists in EIA Processes" (Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning) and utilises the principles and recommendations stated therein to successfully undertake visual impact assessments. Although the guidelines have been developed with specific reference to the Western Cape province of South Africa, the core elements are more widely applicable.

Lidwala Specialist Engineers appointed MetroGIS (Pty) Ltd as an independent specialist consultant to undertake the visual impact assessment for the proposed Hendrina Wet ash disposal facility development. Neither the author, MetroGIS or V&L Landscape Architects will benefit from the outcome of the project decision-making.

1.2. Objectives of the report

The objectives of this assessment include the determination of the potential visual impacts in terms of nature, extent, duration, magnitude, probability, and significance of the construction and operation of the proposed infrastructure.

Issues related to the proposed Wet ash disposal facility, as determined during the Scoping phase, include:

- The visibility of the wet ash disposal facility and associated infrastructure to, and potential visual impact on observers travelling along national and arterial roads (i.e. the *N11 and R542)* as well as secondary roads on observers in close proximity[1] thereto and within the region[2];
- The visibility of the wet ash disposal facility and associated infrastructure to, and potential visual impact on observers travelling by rail in close proximity thereto and within the region;
- The visibility of the wet ash disposal facility and associated infrastructure to, and visual impact on residents of farms and homesteads on observers in close proximity thereto and within the region;
- The potential visual impact of the wet ash disposal facility and associated infrastructure on the visual character of the landscape and sense of place, with specific reference to the rural and agricultural nature of the region;

[1] For the purpose of this study, close proximity is considered to be within 1km of the proposed wet ash disposal facility and associated infrastructure.

[2] For the purpose of this study, the region is considered to be beyond the 1km radius of the proposed wet ash disposal facility and associated infrastructure.

- The visibility of the wet ash disposal facility and associated infrastructure from and potential visual impact on tourist access routes (i.e. the *N11 and R542)* within the region;
- The potential visual impact of lighting at night in terms of light glare and sky glow on observers in close proximity to the proposed wet ash disposal facility and within the region;
- The potential cumulative visual impact of the proposed wet ash disposal facility and associated infrastructure;
- Potential visual impacts associated with the construction phase;
- Potential visual impacts associated with the decommissioning phase;
- The potential to mitigate visual impacts and inform the design process.

1.3. Legislative Framework

Legislation relevant to this study includes the following:

- Constitution of the Republic of South Africa (Act 108 of 1996) and
- National Environmental Management Act (Act 107 of 1998).

1.4. Study approach and methodology

The study was undertaken using Geographic Information Systems (GIS) software as a tool to generate viewshed analyses and to apply relevant spatial criteria to the proposed facility. A detailed Digital Terrain Model (DTM) for the study area was created from 20m interval contours supplied by the Surveyor General.

The approach utilised to identify issues related to the visual impact included the following activities:

- The creation of a detailed digital terrain model (DTM) of the potentially affected environment;
- The sourcing of relevant spatial data. This included cadastral features, vegetation types, land use activities, topographical features, site placement, etc;
- The identification of sensitive environments upon which the proposed facility could have a potential impact;
- The creation of viewshed analyses from the proposed development area in order to determine the visual exposure and the topography's potential to absorb the potential visual impact. The viewshed analysis takes into account the dimensions of the proposed structures.

This report (visual impact assessment) sets out to identify and quantify the possible visual impacts related to the proposed Wet ash disposal facility and associated infrastructure, as well as offer potential mitigation measures, where required.

The following methodology has been followed for the assessment of visual impact:

- **Determine Potential visual exposure**

  The visibility or visual exposure of any structure or activity is the point of departure for the visual impact assessment. It stands to reason that if the proposed Wet ash disposal facility and associated infrastructure were not visible, no impact would occur.

  Viewshed analyses of the proposed Wet ash disposal facility and related infrastructure on the site indicate the potential visibility.

- **Determine the Visual Absorption Capacity of the Landscape**

  This is the capacity of the receiving environment to absorb the potential visual impact of the proposed facility. The VAC is primarily a function of the vegetation, and will be high if the vegetation is tall, dense, and continuous. Conversely, low growing sparse and patchy vegetation will have a low VAC.

  The VAC would also be high where the environment can readily absorb the structure in terms of texture, colour, form and light / shade characteristics of the structure. On the other hand, the VAC for a structure contrasting markedly with one or more of the characteristics of the environment would be low.

  The VAC also generally increases with distance, where discernable detail in visual characteristics of both environment and structure decreases.

  The digital terrain model utilised in the calculation of the visual exposure of the facility does not incorporate the potential visual absorption capacity (VAC) of the natural vegetation of the region. It is therefore necessary to determine the VAC by means of the interpretation of the vegetation cover, supplemented with field observations.

- **Determine Visual Distance and Observer Proximity to the facility**

  In order to refine the visual exposure of the proposed facility on surrounding areas/receptors, the principle of reduced impact over distance is applied in order to determine the core area of visual influence for the Wet ash disposal facility.

  Proximity radii for the proposed development site are created in order to indicate the scale and viewing distance of the facility and to determine the prominence of the structures in relation to their environment.

  The visual distance theory and the observer's proximity to the facility are closely related, and especially relevant, when considered from areas with a high viewer incidence and a predominantly negative visual perception of the proposed facility.

- **Determine Viewer Incidence and Viewer Perception**

  The number of observers and their perception of a structure determine the concept of visual impact. If there are no observers, then there would be no visual impact. If the visual perception of the structure is favourable to all the observers, then the visual impact would be positive.

  It is therefore necessary to identify areas of high viewer incidence and to classify certain areas according to the observer's visual sensitivity towards the proposed Wet ash disposal facility and its related infrastructure.

  It would be impossible not to generalise the viewer incidence and sensitivity to some degree, as there are many variables when trying to determine the perception of the observer; regularity of sighting, cultural background, state of mind, and purpose of sighting which would create a myriad of options.

- **Determine the Visual impact index**

  The results of the above analyses are merged in order to determine where the areas of likely visual impact would occur. These areas are further analysed in terms of the previously mentioned issues (related to the visual impact) and in order to judge the magnitude of each impact.

- **Determine Impact significance**

  The potential visual impacts identified and described are quantified in their respective geographical locations in order to determine the significance of the anticipated impact. Significance is determined as a function of extent, duration, magnitude and probability.

- **Recommend mitigation (if any).**

1.5. Assumptions and limitations

This assessment was undertaken during the planning stage of the project and is based on information available at that time.

The study area for the visual assessment encompasses a geographical area of approximately 342 km² (i.e. the extent of the maps) and includes a minimum 5km buffer zone from the proposed wet ash disposal facility site.

It is assumed that the proposed wet ash disposal facility will be built up in increments of approximately 5m.

1.6. Level of Confidence

Level of confidence[3] is determined as a function of:

- The information available, and understanding of the study area by the practitioner:
  - 3: A high level of information is available of the study area and a thorough knowledge base could be established during site visits, surveys etc. The study area was readily accessible.
  - 2: A moderate level of information is available of the study area and a moderate knowledge base could be established during site visits, surveys etc. Accessibility to the study area was acceptable for the level of assessment.
  - 1: Limited information is available of the study area and a poor knowledge base could be established during site visits and/or surveys, or no site visit and/or surveys were carried out.

- The information available, understanding of the study area and experience of this type of project by the practitioner:
  - 3: A high level of information and knowledge is available of the project and the visual impact assessor is well experienced in this type of project and level of assessment.
  - 2: A moderate level of information and knowledge is available of the project and/or the visual impact assessor is moderately experienced in this type of project and level of assessment.
  - 1: Limited information and knowledge is available of the project and/or the visual impact assessor has a low experience level in this type of project and level of assessment.

[3] Adapted from Oberholzer (2005).

These values are applied as follows:

	Information on the project & experience of the practitioner			
Information on the study area		**3**	**2**	**1**
	3	9	6	3
	2	6	4	2
	1	3	2	1

*The level of confidence for this assessment is determined to be **9** and indicates that the author's confidence in the accuracy of the findings is high:*

- The information available, and understanding of the study area by the practitioner is rated as **3** and
- The information available, understanding of the study area and experience of this type of project by the practitioner is rated as **3**.

2. DESCRIPTION OF THE PROJECT

Hendrina Power Station is located approximately 40km south of Middelburg, on the south-western border of Pullenshope. The site lies approximately 5 km west of the N11. It is one of Eskom's oldest Coal-fired power stations, commissioned between 1970 and 1976. In 2001 the power station had a total capacity of 1900 MW.

Wet Ashing technology is utilised for the disposal of ash. Currently, two wet ash disposal facilitys are in operation, and three are not in use. The operational dams are expected to reach full capacity within five years, which means that from June 2018, a new wet ash disposal facility will be required.

Eskom is proposing to extend the ashing capacity of the Hendrina Power Station through the development of a new wet ash disposal facility, which will cater for the ashing requirements of the power station until 2035 (i.e. the anticipated lifespan of the power station).

The proposed site for the development of the wet ash disposal facility is located to the immediate south of the existing Hendrina power station. The proposed dam will have a design capacity of 43.4 million m^3 and will cover a ground footprint of 135 ha.

The new wet ash disposal facility will be constructed to an estimated maximum height of 44m, and the estimated rate of rise is expected to be between 2,5 and 3m per year.

In addition to the wet ash disposal facility itself, the following off-site infrastructure will be required:

- A new pipe line (laid underground) to accommodate the realignment of existing pipeline which currently traverses the proposed wet ash disposal facility site. This line will run adjacent to the south eastern boundary of the proposed wet ash disposal facility and then swing to the north west before linking with the existing pipeline again;

- 4 new 132kV overhead transmission lines to accommodate the realignment of the existing Eskom transmission lines which currently traverse the proposed wet ash disposal facility site. Four alternative alignments have been considered in this regard:

- **Alternative 1** will run immediately adjacent to the south eastern and south western boundaries of the proposed wet ash disposal facility and then swing to the north east before linking with the existing transmission lines to the north of the site. *This alternative has since been discarded and will not be assessed.*
- **Alternatives 2, 3 and 4** will also run immediately adjacent to the south eastern boundary of the proposed wet ash disposal facility and then swing to the north west at varying degrees before finally tuning to the north east and linking with the existing transmission lines to the north of the site. These lines are also of varying lengths, with Alternative 2 being the shortest and Alternative 3 the longest.

On-site ancillary infrastructure is expected to include conveyors, access roads, fencing and security lighting.

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1. The receiving environment

The study area for the visual assessment is located close to Hendrina in the Steve Tshwete Municipality of the Mpumalanga Province.

There are no major towns in the immediate area. Middelburg lies 40 km to the north west, and Hendrina some 16km to the south east. A number of farms and homesteads occur throughout the study area, and in close proximity to the power station. Refer to **Map 1**[4].

Figure 1: Agricultural land use within the study area.

The N11 bypasses the site in the east and the R542 traverses a section of the study area in the south west. In addition, a number of secondary roads interconnect with the national and arterial roads, as well as with one another. A railway line traverses the study area from the south west to the north. Trains are taken to service both freight and commuters.

Mining and related activity is a prolific land use in the study area, which in combination with the existing power station results in a decidedly industrial visual character within an otherwise rural and agricultural regional setting.

This mining land use is located in close proximity to the power station, especially to the north east. In addition, transmission lines which extend to the north, west, south west and east of the power station contribute further to this existing visual intrusion. Refer to **Map 2**[5].

[4] *Source:* Department of Environmental Affairs and Tourism, 2001. *Environmental Potential Atlas for Mpumalanga Province (ENPAT Mpumalanga).*

[5] *Source:* Department of Environmental Affairs and Tourism, 2001. *Environmental Potential Atlas for Mpumalanga Province (ENPAT Mpumalanga).*

Figure 2: Medium distance view of the existing Hendrina Power Station. *Note the transmission line infrastructure along the road.*

The topography of the area is typical of the Mpumalanga Highveld, mainly a gently undulating plateau, varying between 1680m and 1600m above sea level (asl) along the Woes-Alleen Spruit. The north of the study area appears lower lying and undulating, while the south is characterised by low hills.

In addition to the above mentioned stream, a large number of dams and pans are present in the study area, although many of these have been disturbed to some extent by mining activity. The drainage lines which traverse the study area all flow north towards the Olifants River. Refer to **Map 1**.

The ENPAT describes the terrain as *moderately undulating plains and pans* and the natural vegetation type as *Bankenveld.* Land cover is primarily *agricultural* interspersed with *grassland* especially along the drainage lines. With its moderately dry subtropical climate, the study area receives between 621 and 752 mm of rainfall per annum.

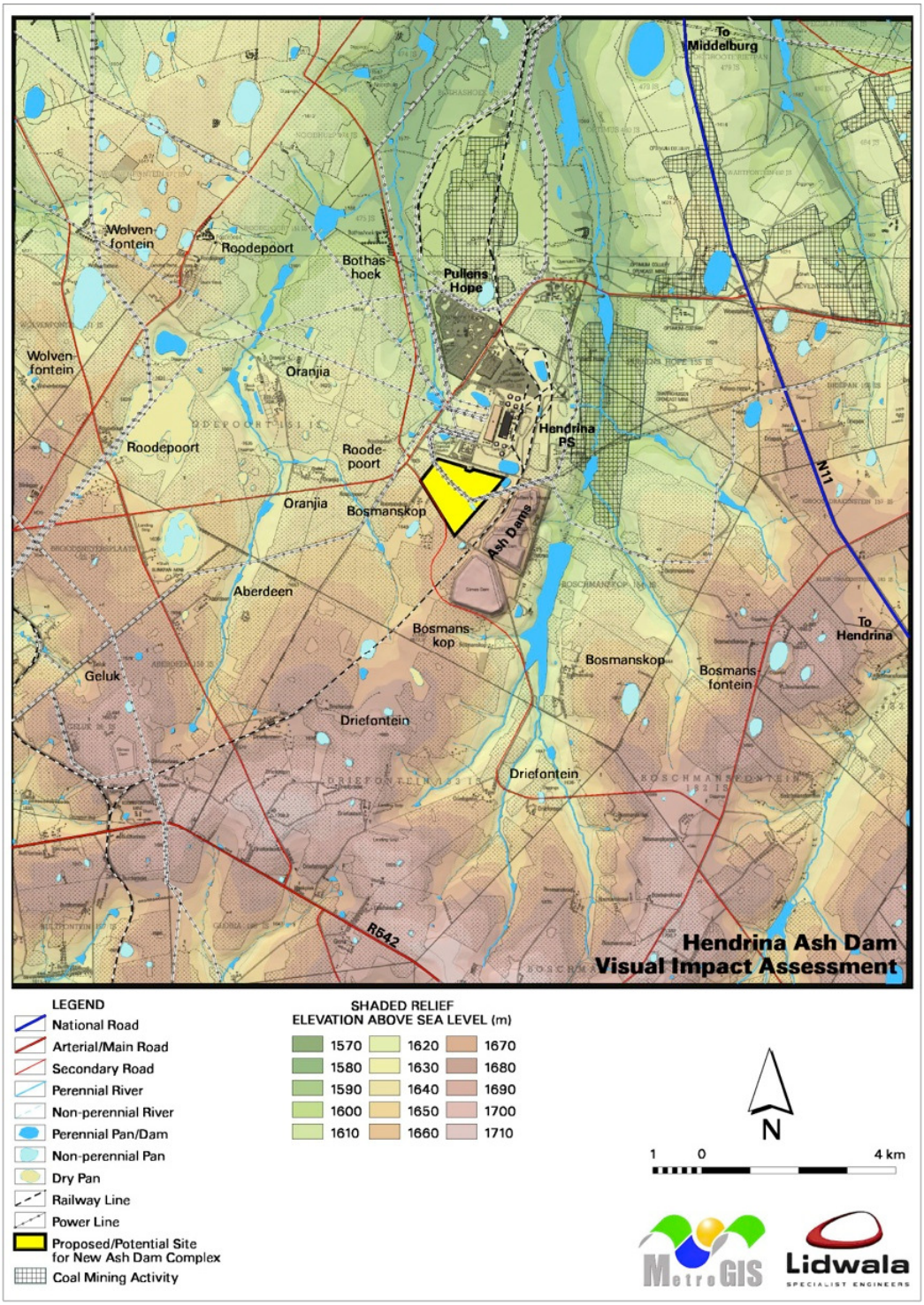
No formally protected areas or conservation areas are located in close proximity to the proposed site, or within the identified study area.

The study area falls within the Mpumalanga Province, which is a particularly popular and well frequented tourist destination in South Africa. There are no known tourist facilities or destinations within the study area, but tourists en route to other parts of Mpumalanga may utilise the main regional access routes such as the N11 and the R542.

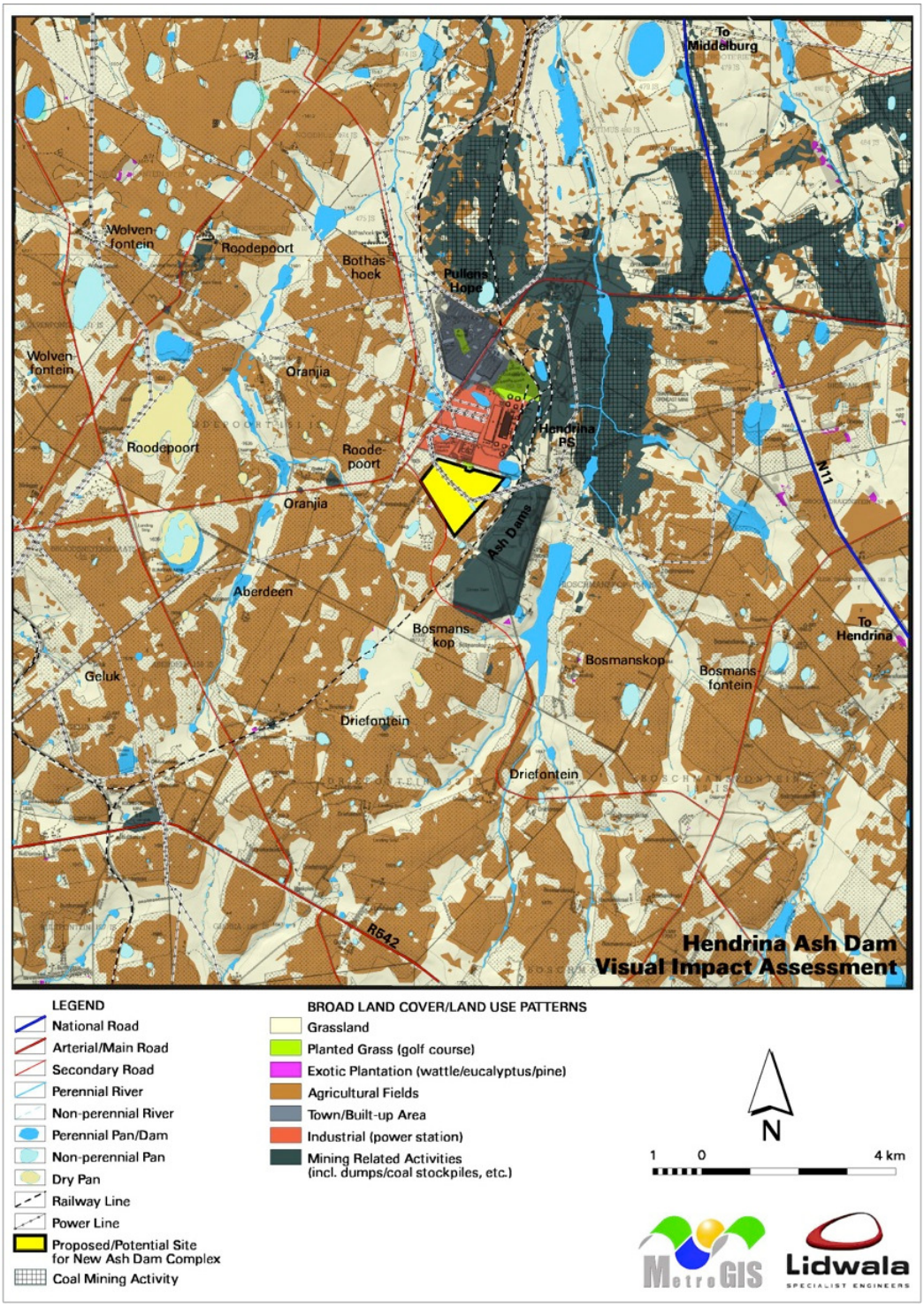
Despite the industrial nature of the existing power station and surrounds, the greater landscape of the study area is characterised by wide-open spaces and little development. Beyond the industrial complexes, the study area has a rural, agricultural character with an overall high visual quality.

Figure 3: Wide open spaces characterising the visual environment of the study area.

Figure 4: Visual character of the site for the proposed wet ash disposal facility.



Map 1: Locality and layout of the proposed wet ash disposal facility and associated infrastructure.



Map 2: Land cover and broad land use patterns within the broader study area.

3.2. Potential visual exposure

3.2.1 The proposed wet ash disposal facility

The result of the preliminary viewshed analysis for the proposed wet ash disposal facility is shown on **Map 3**. The analysis for the wet ash disposal facility was undertaken from the indicated footprint of the proposed wet ash disposal facility at an estimated maximum height of 44m above average ground level (i.e. the approximate maximum height of the proposed wet ash disposal facility).

It must be noted that the viewshed analyses do not include the potential shielding effect of vegetation cover or existing structures on the exposure of the proposed wet ash disposal facility, and it does not take into consideration the limitations of the human eye, therefore signifying a worst-case scenario.

The total area of potential visual exposure is 188,4km². The following is evident from the viewshed analysis:

- The proposed wet ash disposal facility will have a large core area of potential visual exposure on the site itself, and within a 2,5km offset. Almost the entire area within 2,5km is likely to be visually exposed. The exception is the south east, beyond the existing wet ash disposal facilitys.

  This core area includes a number of homesteads and farms (i.e. Bosmanskop, Oranjia and Roodepoort) and a few dams and pans. In general, the drainage lines are not exposed, due to their incised topography.

  The secondary roads giving access to the north, west and south will also be exposed to potential visual impact.

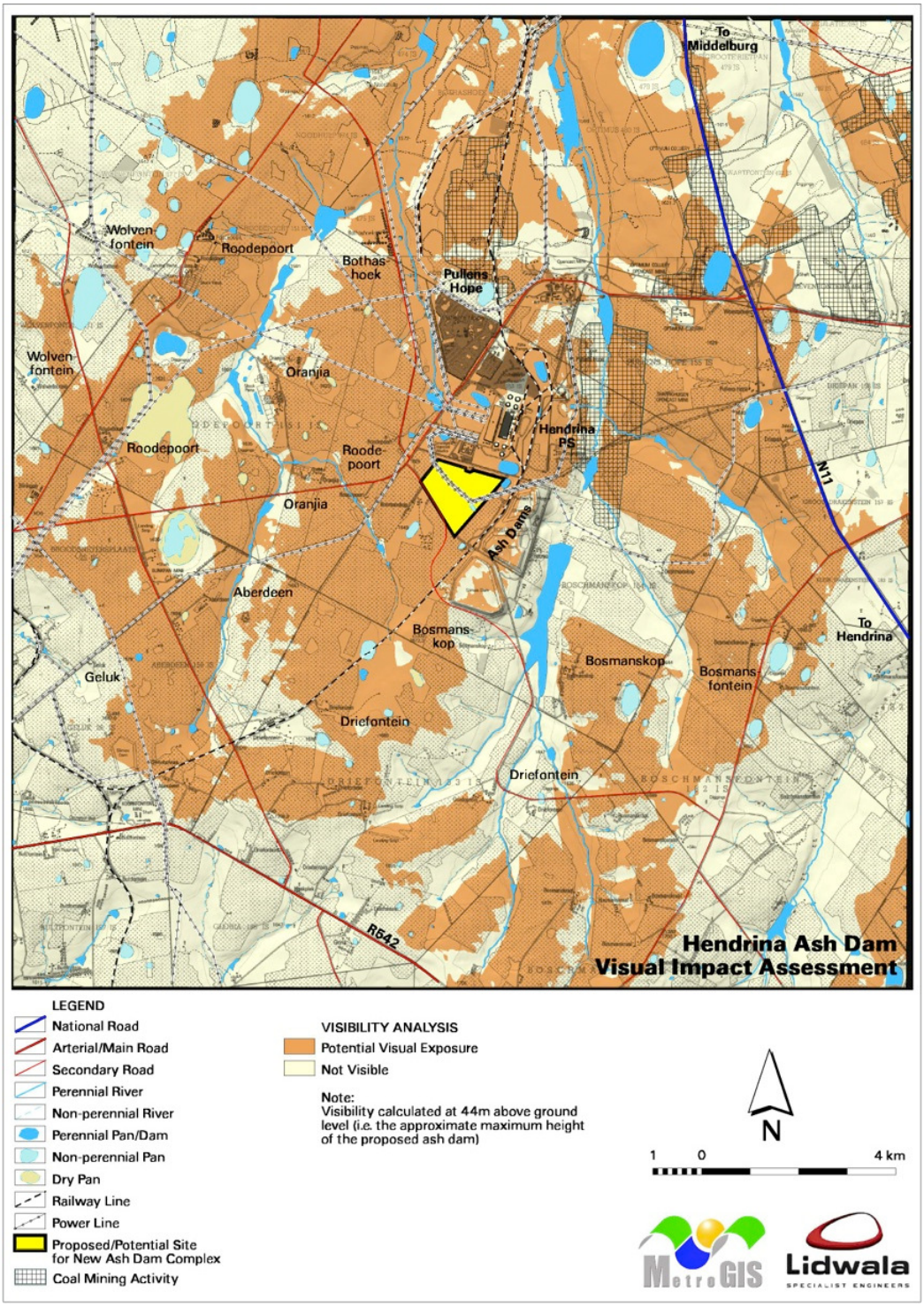
- Potential visual exposure is somewhat reduced in the medium distance (i.e. between 2,5 and 5km). Areas in the west and east, along the drainage lines, will be visually screened.

  The main receptors that are likely to be exposed to potential visual impact include users of secondary roads to the north, north east and west and a number of homesteads and farms. These include Bothashoek, Oranjia, Aberdeen, Driefontein and Bosmanskop.

  A few non-perennial pans also fall within the zone of potential visual exposure.

- In the longer distance (i.e. beyond 5km), visual exposure is further reduced, interrupted by low lying areas and incised drainage lines in the far north west and north east and by the hills in the south of the study area.

  Receptors exposed to potential visual exposure include the farms and homesteads of Roodepoort and Bosmansfontein. Relatively long stretches of the N11 fall within the zone of potential visual exposure, as do relatively continuous lengths of secondary roads in the west, north west and south east.



Map 3: Potential visual exposure of the proposed wet ash disposal facility and associated infrastructure.

3.2.2 The proposed transmission lines

Map 4 shows the anticipated visual exposure of the proposed transmission line alternatives for a distance of 2km on either side of the proposed alignments at an offset height of 30m above ground level (i.e. the approximate maximum height of the proposed transmission lines).

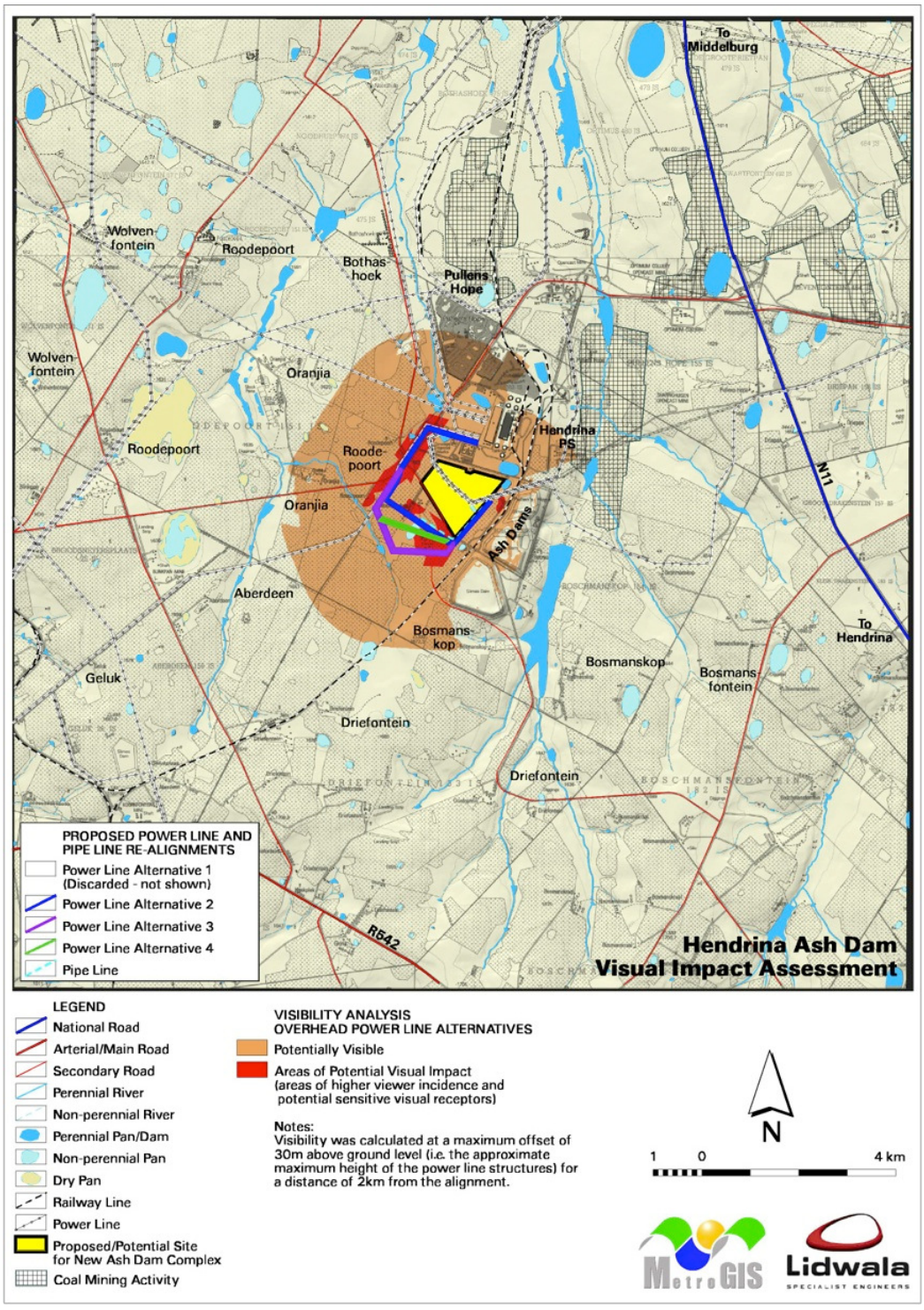
It must be noted that the viewshed analyses do not include the potential shielding effect of vegetation cover or existing structures on the exposure of the proposed wet ash disposal facility, and it does not take into consideration the limitations of the human eye, therefore signifying a worst-case scenario.

With the exception of the area to the south east, beyond the existing wet ash disposal facility, the entire area within 2km of the new transmission lines will potentially experience visual impact.

Alternative Alignment 2 appears to be the shorter of the 3 Alternatives assessed. Despite being of a different visual nature to the wet ash disposal facility, this concentration and consolidation of infrastructure is considered favourable from a visual perspective.

Alternative Alignments 3 and 4 are longer, with 3 being the longest. Again, the concentration and consolidation of infrastructure is considered favourable from a visual perspective, thus rendering these Alternative Alignments less favourable than Alternative 2.

Of relevance is the fact that the extent of potential visual exposure of the proposed transmission line alternatives lies within the anticipated viewshed of the proposed wet ash disposal facility. This is due to the fact that the transmission lines will be somewhat shorter than the ultimate height of the wet ash disposal facility.



Map 4: Potential visual exposure of the transmission line alternatives.

3.3. Visual absorption capacity

The climate of the study area is moderately dry subtropical, with the study area receiving between 621 and 752 mm of rainfall per annum. Land cover is primarily *agricultural* interspersed with *grassland* especially along the drainage lines.

Overall, the Visual Absorption Capacity (VAC) of the receiving environment is low due to the nature and height of the vegetation, and the largely undeveloped state of the receiving environment.

VAC will thus not be taken into account, except within the mining and industrial complexes, where topographic disturbance, structures, infrastructure and visual clutter will absorb the visual impact of the proposed wet ash disposal facility somewhat.

3.4. Visual distance / observer proximity

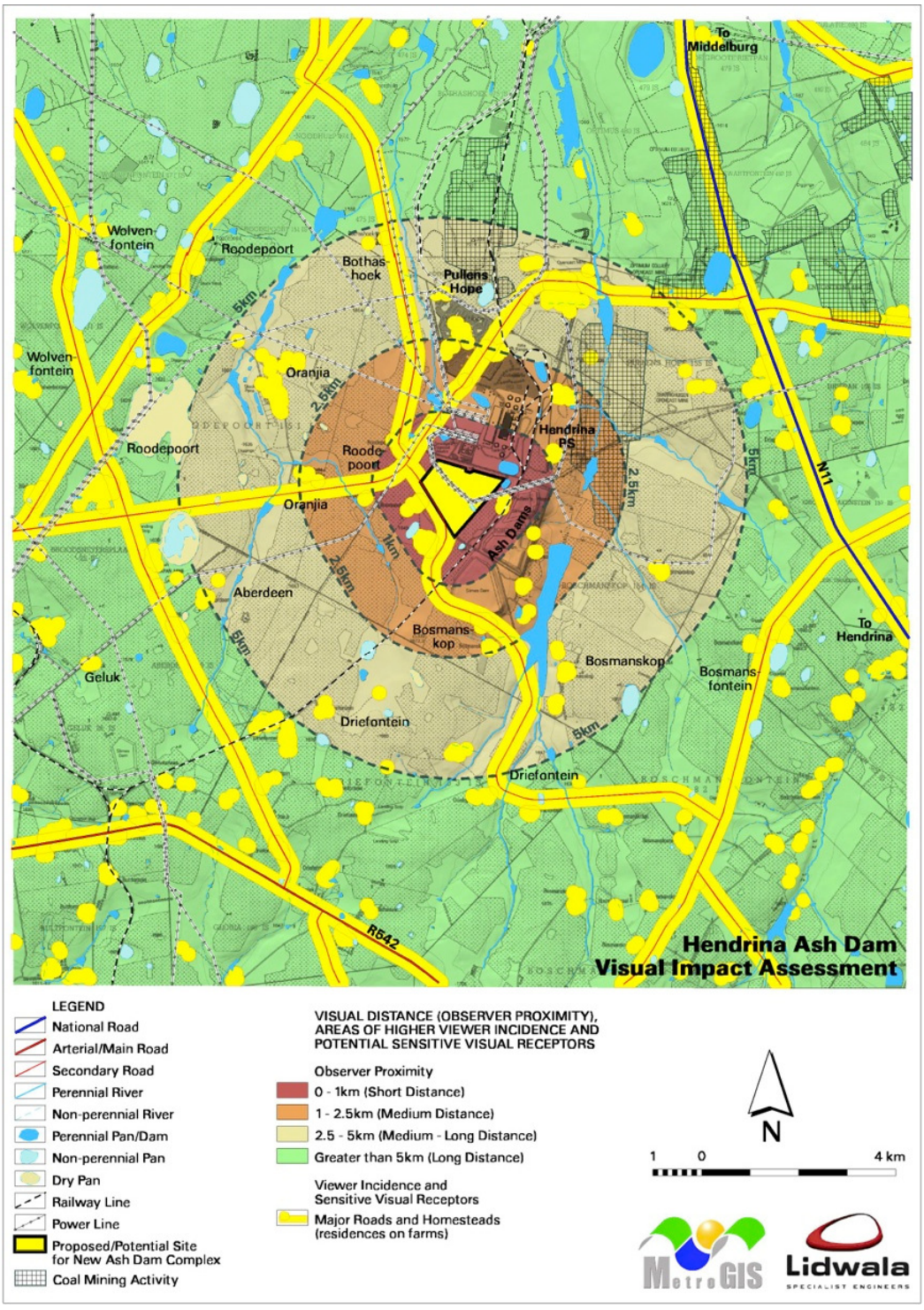
MetroGIS determined proximity radii based on the anticipated visual experience of the observer over varying distances. The following factors are considered for the determination of appropriate proximity radii:

- The maximum cone of vision for a stationary person, which is accepted to be 60 degrees in both the vertical and the horizontal fields. This cone of vision allows for easy eye movement and no loss of focus of the object in question.
- The maximum horizontal extent or widest cross section of the proposed wet ash disposal facility that an observer will be able to perceive.
- The maximum height of the tallest infrastructure.

For a wet ash disposal facility, the horizontal extent is of most significance. In this respect, the proximity radii are calculated as a function of the critical point at which an observer will be able to perceive the full extent of the wet ash disposal facility within a maximum 60 degree cone of vision. MetroGIS developed this methodology in the absence of any known and/or acceptable standards for South African wet ash disposal facilitys.

The proximity radii used for this study (calculated from the cumulative boundary of the parks) are shown on **Map 5** and are as follows:

- 0 – 1km - Short distance view where the wet ash disposal facility would dominate the frame of vision and constitute a very high visual prominence.
- 1 – 2,5km - Medium distance views where the wet ash disposal facility would be easily and comfortably visible and constitute a high visual prominence.
- 2,5 - 5km - Medium to longer distance view where the wet ash disposal facility would become part of the visual environment, but would still be visible and recognisable. This zone constitutes a medium visual prominence.
- Greater than 5 km - Long distance view where the wet ash disposal facility would still be visible though not as easily recognisable. This zone constitutes a low visual prominence for the wet ash disposal facility.



Map 5: Observer proximity, areas of high viewer incidence and potential sensitive visual receptors.

3.5. Viewer incidence and viewer perception

3.5.1 Sensitive visual receptors

Refer to **Map 5**. Viewer incidence is calculated to be the highest along the roads within the study area. Commuters using the secondary roads are seen as relatively sensitive, and could be negatively impacted upon by visual exposure to the proposed wet ash disposal facility and associated infrastructure.

Commuters travelling by rail are considered less sensitive.

Other than along the roads and railway line, viewer incidence will be concentrated within the agricultural homesteads and settlements within the study area. Residents of these homesteads and settlements are considered to be sensitive to potential visual impact.

Further afield, beyond the industrial and mining hub, users of the N11 and R542 will also be sensitive to visual intrusion as these routes may carry tourists accessing and touring the scenic Mpumalanga Province.

Overall, the severity of the visual impact on visual receptors decreases with increased distance from the proposed wet ash disposal facility and associated infrastructure.

3.5.2 Sense of place

Sense of place refers to a unique experience of an environment by a user, based on his or her cognitive experience of the place. Visual criteria and specifically the visual character of an area (informed by a combination of aspects such as topography, level of development, vegetation, noteworthy features, cultural / historical features, etc) play a significant role.

A visual impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light.

Outside of the industrial and mining hub in the vicinity of the power station, the greater landscape of the study area is characterised by wide-open spaces and little development. Beyond these industrial complexes, the study area has a rural, agricultural character with an overall high visual quality.

Sensitivity to potential visual impact in this regard is ameliorated somewhat by the low incidence of visual receptors and considerable distance to tourist access routes.

4. FINDINGS / VISUAL IMPACT INDEX

The combined results of the visual exposure, viewer incidence / perception and visual distance of the proposed wet ash disposal facility and associated infrastructure (including transmission lines and pipelines) are displayed on **Map 6**.

Here the weighted impact and the likely areas of impact have been indicated as a visual impact index. Values have been assigned for each potential visual impact per data category and merged in order to calculate the visual impact index.

An area with short distance, a potential visual exposure to the proposed wet ash disposal facility, a high viewer incidence, and a predominantly negative perception would therefore have a higher value (greater impact) on the index. This helps in focussing the attention to the critical areas of potential impact when evaluating the issues related to the visual impact.

Of relevance is that the visual character of the area in close proximity to the proposed site is influenced by the presence of the existing Hendrina Power Station, the mining areas and the numerous transmission lines. This existing visual context will be taken into consideration during the assessment of the anticipated visual impacts which follows, affecting the probability of anticipated impacts.

4.1. The Wet ash disposal facility

4.1.1 Alternative 1- Site E

4.1.1.1 Construction phase:

The anticipated nature of visual impacts is as follows:

- The clearing of vegetation and required earthworks to prepare the site for the proposed wet ash disposal facility could result in visual impact through the exposure of bare soil within an otherwise vegetated or cultivated environment.
- Spoil stockpiles and waste dumps could manifest as topographic intrusions (albeit temporary).
- Lay down areas and materials stockpiles may also be visible, and represent potential eyesores.
- In addition, there will be a noticeable increase in heavy vehicles utilising the roads to the development site during construction. These may cause, at the very least, a visual nuisance to other road users and land owners in the area.
- Dust from construction work could also result in potential visual impact.
- At the end of construction, the failure to properly rehabilitate and reinstate construction sites could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the construction phase is expected to be **moderate** in close proximity to the proposed site and **low** within the greater region.

  Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.1.1.2 Operational phase

The anticipated nature of visual impacts is as follows:

- During operation, it is anticipated that the proposed wet ash disposal facility will grow in increments of approximately 2,5 – 3m per year until it reaches an estimated maximum height of 44m after about 16 years. The bulk of this wet ash disposal facility represents the primary visual impact, which will reach a maximum after approximately 16 years.

- Access roads will be required for operational and maintenance purposes. These roads have the potential of manifesting as landscape scarring, and thus a potential visual impact within the viewshed areas.
- The area immediately surrounding the proposed wet ash disposal facility has a relatively low incidence of receptors, so light trespass and glare from the security and after-hours operational lighting may have some significance for visual receptors in close proximity. Existing light sources such as the power station and nearby mining activities reduce the probability of this impact occurring, however.
- Another potential lighting impact is that known as sky glow. Sky glow is the condition where the night sky is illuminated when light reflects off particles in the atmosphere such as moisture, dust or smog. The sky glow intensifies with the increase in the amount of light sources. Each new light source, especially upwardly directed lighting, contribute to the increase in sky glow.

The anticipated magnitude of visual impacts is as follows:

- Areas of **moderate** visual impact are expected within a 1km radius of the proposed wet ash disposal facility. Within this radius, sensitive visual receptors may experience potentially **high** visual impact along the secondary roads and within homesteads and settlements adjacent to the site. The latter include Bosmanskop and Roodepoort.
- The extent of potential visual impact decreases somewhat between the 1km and 2,5km radius, with a significant visually screened area in the south east beyond the existing wet ash disposal facilitys. Visually exposed areas are likely to be exposed to **low** visual impact. Stretches of secondary roads in the north, north west, west and to a lesser extent to the south will be exposed to potentially **moderate** visual impact. In addition, the homestead / settlement of Oranjia may be exposed to moderate visual impact.
- Between 2,5km and 5km the extent of potential visual exposure is reduced, especially along the incised drainage lines in the west and east. The magnitude of impacts are also mostly reduced to **very low**. Sensitive visual receptors within this zone may be exposed to **low** visual impact. These include users of secondary roads in the north and west, and various settlements and homesteads, including Bothashoek, Oranjia, Aberdeen, Driefontein and Bosmanskop.
- Beyond the 5km radius, the magnitude of potential visual impacts is mostly **negligible**. The extent of visual exposure is also broken up by drainage lines and low lying areas in the north, and mountains in the south. Users of parts of the N11 and most secondary roads within the study area, as well as residents of Roodepoort and Bosmansfontein could be exposed to potentially **very low** visual impact.

4.1.1.3 De-commissioning phase

The anticipated nature of visual impacts is as follows:

- During decommissioning, the form of the wet ash disposal facility will be manipulated to tie in with the landform of the surrounding environment. Ultimately, this is a positive impact.
- The rehabilitation works for the proposed wet ash disposal facility may be likened to construction to some extent, as it is anticipated that interim vegetation planted on the slopes during operation will be removed ahead of earthworks, resulting in the exposure of bare soil within an otherwise vegetated or cultivated environment.

- Earthworks could manifest as denuded earth and landscape scarring and dust could result in additional visual impact in the short term.
- Post decommissioning, the failure to properly rehabilitate and reinstate could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the decommissioning phase is expected to be **moderate** in close proximity to the site and **low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.1.1.4 Cumulative impacts

The anticipated nature of visual impacts is as follows:

- The construction of the wet ash disposal facility and ancillary infrastructure will increase the cumulative visual impact of mining and industrial type infrastructure in close proximity thereto as well as within the region.

The anticipated magnitude of visual impacts is as follows:

- Cumulative visual impact within the region is expected to be **moderate** in close proximity to the proposed site and **low** within the region. Sensitive visual receptors include users of the national, arterial and secondary roads, residents of settlements and homesteads, and tourists visiting or passing through the area.

4.1.2 Alternative 2 – No-Go

4.1.2.1 Construction phase:

As no construction will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.1.2.2 Operational phase:

As no activity will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.1.2.3 De-commissioning phase:

As no activity will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.1.2.4 Cumulative impacts:

As no activity will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.2. Transmission lines

4.2.1 Alternative Corridor 2

4.2.1.1 Construction phase:

The anticipated nature of visual impacts is as follows:

- The construction phase of the transmission lines will entail the clearing of vegetation to make way for the servitude and access road and possibly some minor earthworks. These construction activities may result in the exposure of bare soil within an otherwise vegetated or cultivated environment.
- In addition, there will be a noticeable increase in heavy vehicles utilising the roads to the development site during construction. These may cause, at the very least, a visual nuisance to other road users and land owners in the area.
- Dust from construction work could also result in potential visual impact.
- At the end of construction, the failure to properly rehabilitate and reinstate construction sites could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the construction phase is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.1.2 Operational phase:

The anticipated nature of visual impacts is as follows:

- In addition to the transmission lines themselves, each line will require the maintenance of a cleared servitude along its alignment as well as an access road. In this respect, vegetation will need to be kept cleared or short.

The anticipated magnitude of visual impacts is as follows:

- The anticipated visual impact resulting from Alternative 2 for the new overhead transmission lines is expected to be of **moderate** magnitude in close proximity to the proposed site and **low** within the greater region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.1.3 De-commissioning phase:

It is not anticipated that the transmission lines will be decommissioned or removed, so no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.1.4 Cumulative impacts:

The anticipated nature of visual impacts is as follows:

- The construction of the new transmission lines will increase the cumulative visual impact of industrial and electrical type infrastructure (especially transmission lines) in close proximity thereto as well as within the region.

The anticipated magnitude of visual impacts is as follows:

- Cumulative visual impact in close proximity to the transmission line and within the region is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.2 Alternative Corridor 3

4.2.2.1 Construction phase:

The anticipated nature of visual impacts is as follows:

- The construction phase of the transmission lines will entail the clearing of vegetation to make way for the servitude and access road and possibly some minor earthworks. These construction activities may result in the exposure of bare soil within an otherwise vegetated or cultivated environment.
- In addition, there will be a noticeable increase in heavy vehicles utilising the roads to the development site during construction. These may cause, at the very least, a visual nuisance to other road users and land owners in the area.
- Dust from construction work could also result in potential visual impact.
- At the end of construction, the failure to properly rehabilitate and reinstate construction sites could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the construction phase is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.2.2 Operational phase:

The anticipated nature of visual impacts is as follows:

- In addition to the transmission lines themselves, each line will require the maintenance of a cleared servitude along its alignment as well as an access road. In this respect, vegetation will need to be kept cleared or short.

The anticipated magnitude of visual impacts is as follows:

- The anticipated visual impact resulting from Alternative 3 for the new overhead transmission lines is expected to be of **moderate** magnitude in close proximity to the proposed site and **low** within the greater region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.2.3 De-commissioning phase:

It is not anticipated that the transmission lines will be decommissioned or removed, so no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.2.4 Cumulative impacts:

The anticipated nature of visual impacts is as follows:

- The construction of the new transmission lines will increase the cumulative visual impact of industrial and electrical type infrastructure (especially transmission lines) in close proximity thereto as well as within the region.

The anticipated magnitude of visual impacts is as follows:

- Cumulative visual impact in close proximity to the transmission line and within the region is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.3 Alternative Corridor 4

4.2.3.1 Construction phase:

The anticipated nature of visual impacts is as follows:

- The construction phase of the transmission lines will entail the clearing of vegetation to make way for the servitude and access road and possibly some minor earthworks. These construction activities may result in the exposure of bare soil within an otherwise vegetated or cultivated environment.
- In addition, there will be a noticeable increase in heavy vehicles utilising the roads to the development site during construction. These may cause, at the very least, a visual nuisance to other road users and land owners in the area.
- Dust from construction work could also result in potential visual impact.
- At the end of construction, the failure to properly rehabilitate and reinstate construction sites could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the construction phase is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.3.2 Operational phase:

The anticipated nature of visual impacts is as follows:

- In addition to the transmission lines themselves, each line will require the maintenance of a cleared servitude along its alignment as well as

an access road. In this respect, vegetation will need to be kept cleared or short.

The anticipated magnitude of visual impacts is as follows:

- The anticipated visual impact resulting from Alternative 4 for the new overhead transmission lines is expected to be of **moderate** magnitude in close proximity to the proposed site and **low** within the greater region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.3.3 De-commissioning phase:

It is not anticipated that the transmission lines will be decommissioned or removed, so no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.3.4 Cumulative impacts:

The anticipated nature of visual impacts is as follows:

- The construction of the new transmission lines will increase the cumulative visual impact of industrial and electrical type infrastructure (especially transmission lines) in close proximity thereto as well as within the region.

The anticipated magnitude of visual impacts is as follows:

- Cumulative visual impact in close proximity to the transmission line and within the region is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.2.4 Alternative 5 – No-Go

4.2.4.1 Construction phase:

As no construction will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.4.2 Operational phase:

As no realignment of the existing transmission lines will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.4.3 De-commissioning phase:

As no realignment of the existing transmission lines will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.2.4.4 Cumulative impacts:

As no realignment of the existing transmission lines will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.3. Pipelines

4.3.1 Alternative Route 1

4.3.1.1 Construction phase:

The anticipated nature of visual impacts is as follows:

- The clearing of vegetation and required earthworks to prepare for the installation of the pipe line could result in visual impact through the exposure of bare soil within an otherwise vegetated or cultivated environment.
- In addition, there will be a noticeable increase in heavy vehicles utilising the roads to the development site during construction. These may cause, at the very least, a visual nuisance to other road users and land owners in the area.
- Dust from construction work could also result in potential visual impact.
- At the end of construction, the failure to properly rehabilitate and reinstate construction sites could result in the persistence of visual impacts as a result of cleared vegetation. Erosion could follow.

The anticipated magnitude of visual impacts is as follows:

- Visual impact related to the construction phase is expected to be **low** in close proximity to the proposed site and **very low** within the region. Sensitive visual receptors include users of secondary roads and residents of settlements and homesteads in close proximity.

4.3.1.2 Operational phase:

As the pipeline is laid underground, no visual impacts are anticipated. The visual environment will maintain its rehabilitated, post-construction status quo.

4.3.1.3 De-commissioning phase:

It is not anticipated that the pipeline will be decommissioned or removed, so no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.3.1.4 Cumulative impacts:

As the pipeline is laid underground, no cumulative visual impacts are anticipated. The visual environment will maintain its rehabilitated, post-construction status quo.

4.3.2 Alternative 2 – No-Go

4.3.2.1 Construction phase:

As no construction will take place, no visual impacts are anticipated. The visual environment will maintain its status quo.

4.3.2.2 Operational phase:

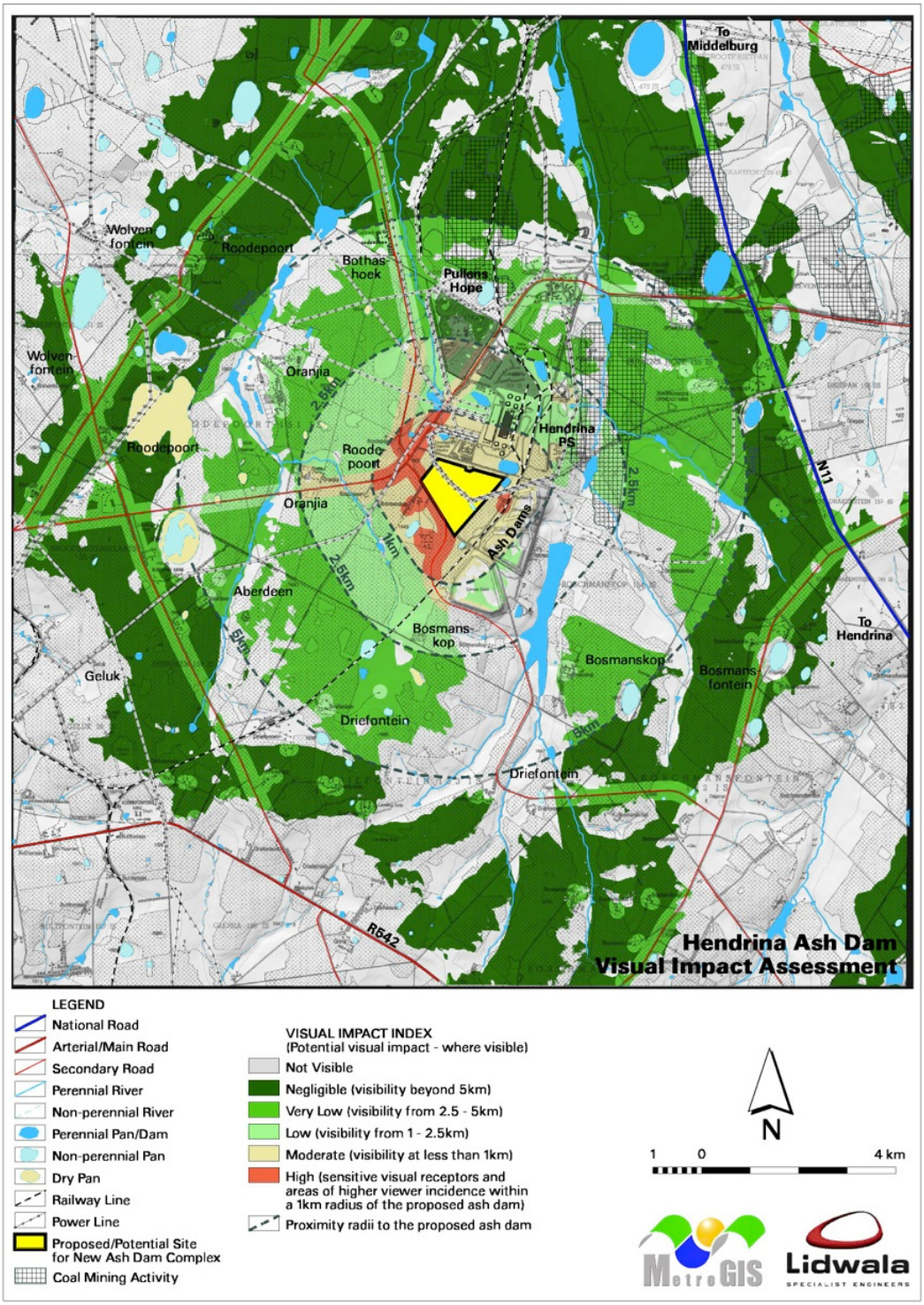
As no realignment of the existing pipe line will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.3.2.3 De-commissioning phase:

As no realignment of the existing pipe line will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.

4.3.2.4 Cumulative impacts:

As no realignment of the existing pipe line will take place, no altered or additional visual impacts are anticipated. The visual environment will maintain its status quo.



Map 6: Visual impact index of the proposed wet ash disposal facility and associated infrastructure.

5. ASSESSMENT OF IMPACTS

The previous section of the report identified specific areas where likely visual impacts would occur. This section will attempt to quantify these potential visual impacts in their respective geographical locations and in terms of the identified issues (see Chapter 1.2) related to the visual impact.

The methodology for the assessment of potential visual impacts states the **nature** of the potential visual impact (e.g. the visual impact on users of major roads in the vicinity of the proposed Wet ash disposal facility) and includes a table quantifying the potential visual impact according to the following criteria:

- **Extent** - site only (very high = 5), local (high = 4), regional (medium = 3), national (low = 2) or international (very low = 1).
- **Duration** - very short (0-1 yrs = 1), short (2-5 yrs = 2), medium (5-15 yrs = 3), long (>15 yrs = 4), and permanent (= 5).
- **Magnitude** - None (= 0), minor (= 2), low (= 4), medium/moderate (= 6), high (= 8) and very high (= 10). This value is informed by the Visual Impact Index. Where more than one value is applicable, then the higher of the two values will be used to indicate a worst case scenario.
- **Probability** – very improbable (= 1), improbable (= 2), probable (= 3), highly probable (= 4) and definite (= 5). This value is read from the visual impact index.
- **Status** (positive, negative or neutral).
- **Reversibility** - reversible (= 1), recoverable (= 3) and irreversible (= 5).
- **Significance** - low, medium or high.

The **significance** of the potential visual impact is equal to the **consequence** multiplied by the **probability** of the impact occurring, where the consequence is determined by the sum of the individual scores for magnitude, duration and extent (i.e. **significance = consequence (magnitude + duration + extent) x probability**).

The significance weighting for each potential visual impact (as calculated above) is as follows:

- <30 points: Low (where the impact would not have a direct influence on the decision to develop in the area).
- 31-60 points: Medium/moderate (where the impact could influence the decision to develop in the area).
- >60: High (where the impact must have an influence on the decision to develop in the area).

*Please note that due to the declining visual impact over distance, the **extent** (or spatial scale) rating is reversed (i.e. a localised visual impact has a higher value rating than a national or regional value rating). This implies that the visual impact is highly unlikely to have a national or international extent, but that the local or site-specific impact could be of high significance.*

5.1. Construction Phase

Wet ash disposal facility Site E									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, stockpiles, laydown areas, heavy vehicles, dust & rehabilitation failure.							
	with	4	1	6	2	**22**	**Low**	-	High
	without	4	1	6	3	**33**	**Medium**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, stockpiles, laydown areas, heavy vehicles, dust & rehabilitation failure.							
	with	3	1	4	1	**8**	**Low**	-	High
	without	3	1	4	2	**16**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Wet ash disposal facility No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 2									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the transmission line	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	4	1	4	2	**18**	**Low**	-	High
	without	4	1	4	3	**27**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	3	1	2	1	**6**	**Low**	-	High
	without	3	1	2	2	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 3									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the transmission line	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	4	1	4	2	**18**	**Low**	-	High
	without	4	1	4	3	**27**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	3	1	2	1	**6**	**Low**	-	High
	without	3	1	2	2	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 4									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the transmission line	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	4	1	4	2	**18**	**Low**	-	High
	without	4	1	4	3	**27**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	3	1	2	1	**6**	**Low**	-	High
	without	3	1	2	2	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline Route 1									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the pipeline	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	4	1	4	2	**18**	**Low**		High
	without	4	1	4	3	**27**	**Low**		High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of construction on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, heavy vehicles, dust & rehabilitation failure.							
	with	3	1	2	1	**6**	**Low**		High
	without	3	1	2	2	**12**	**Low**		High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Pipeline No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

5.2. Operational phase

Wet ash disposal facility Site E									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	4	4	8	3	**48**	**Medium**	-	High
	without	4	4	8	3	**48**	**Medium**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	3	4	6	2	**26**	**Low**	-	High
	without	3	4	6	2	**26**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Potential visual impact on commuters traveling by rail in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	4	4	6	2	**28**	**Low**	-	High
	without	4	4	6	2	**28**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on commuters traveling by rail within the region	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	3	4	4	1	**11**	**Low**	-	High
	without	3	4	4	1	**11**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of lighting at night on sensitive visual receptors in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact at night due to direct glare from security lighting							
	with	4	4	4	2	**24**	**Low**	-	High
	without	4	4	4	3	**36**	**Medium**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Potential visual impact of lighting at night on sensitive visual receptors within the region	**Nature of impact:**	Visual impact at night due to sky glow							
	with	3	4	2	1	**9**	**Low**	-	High
	without	3	4	2	2	**18**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of the proposed wet ash disposal facility on visual character of the landscape and sense of place of the region	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	3	4	2	2	**18**	**Low**	-	High
	without	3	4	2	2	**18**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of the proposed wet ash disposal facility on tourist access routes within the region	**Nature of impact:**	Visual impact due to the wet ash disposal facility and on-site ancillary infrastructure (conveyors, access roads, fencing, lighting structures)							
	with	3	4	2	2	**18**	**Low**	-	High
	without	3	4	2	2	**18**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Wet ash disposal facility No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 2									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	4	5	6	2	**30**	**Low**	-	High
	without	4	5	6	2	**30**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	3	5	4	1	**12**	**Low**	-	High
	without	3	5	4	1	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 3									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	4	5	6	2	**30**	**Low**	-	High
	without	4	5	6	2	**30**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	3	5	4	1	**12**	**Low**	-	High
	without	3	5	4	1	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 4									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	4	5	6	2	**30**	**Low**	-	High
	without	4	5	6	2	**30**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to the transmission line, access road and servitude							
	with	3	5	4	1	**12**	**Low**	-	High
	without	3	5	4	1	**12**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline Route 1									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline Route No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

5.3. Decommissioning phase

Wet ash disposal facility Site E									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact of site works on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, dust & rehabilitation failure.							
	with	4	1	6	2	**22**	**Low**	-	High
	without	4	1	6	3	**33**	**Medium**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of site works on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to vegetation clearing, earthworks, dust & rehabilitation failure.							
	with	3	1	4	1	**8**	**Low**	-	High
	without	3	1	4	2	**16**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Potential visual impact of the rehabilitated wet ash disposal facility on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Visual impact due to the rehabilitated wet ash disposal facility and removal of superfluous ancillary infrastructure.							
	with	4	5	4	3	**39**	**Medium**	+	High
	without	4	5	4	3	**39**	**Medium**	+	High
	degree to which impact can be reversed:	N/a							
	degree of impact on irreplaceable resources:	None							
Potential visual impact of the rehabilitated wet ash disposal facility on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Visual impact due to the rehabilitated wet ash disposal facility and removal of superfluous ancillary infrastructure.							
	with	3	5	2	3	**30**	**Low**	+	High
	without	3	5	2	3	**30**	**Low**	+	High
	degree to which impact can be reversed:	N/a							
	degree of impact on irreplaceable resources:	None							

Wet ash disposal facility No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 2									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 3									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 4									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line No-Go Alternative									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be								

	reversed:	
	degree of impact on irreplaceable resources:	

Pipeline Route 1									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline No-Go Alternative									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

5.4. Cumulative impacts

Wet ash disposal facility - Site E									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed wet ash disposal facility	**Nature of impact:**	Cumulative visual impact resulting from the accumulation of mining and industrial type infrastructure							
	with	4	5	6	3	**45**	**Medium**	-	High
	without	4	5	6	3	**45**	**Medium**	-	High
	degree to which impact can be reversed:	Irrecoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**	Cumulative visual impact resulting from the accumulation of mining and industrial type infrastructure							
	with	3	5	4	2	**24**	**Low**	-	High
	without	3	5	4	2	**24**	**Low**	-	High
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Wet ash disposal facility No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Transmission Line Corridor 2									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Cumulative visual impact resulting from the accumulation of electrical type infrastructure							
	with	4	5	4	2	**26**	**Low**	-	High
	without	4	5	4	2	**26**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of	**Nature of impact:**								
	with	3	5	2	1	**10**	**Low**	-	High
	without	3	5	2	1	**10**	**Low**	-	High

homesteads and settlements) within the region	**degree to which impact can be reversed:**	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 3									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Cumulative visual impact resulting from the accumulation of electrical type infrastructure							
	with	4	5	4	2	**26**	**Low**	-	High
	without	4	5	4	2	**26**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**								
	with	3	5	2	1	**10**	**Low**	-	High
	without	3	5	2	1	**10**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line Corridor 4									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) in close proximity to the proposed transmission line	**Nature of impact:**	Cumulative visual impact resulting from the accumulation of electrical type infrastructure							
	with	4	5	4	2	**26**	**Low**	-	High
	without	4	5	4	2	**26**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							
Potential visual impact on sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements) within the region	**Nature of impact:**								
	with	3	5	2	1	**10**	**Low**	-	High
	without	3	5	2	1	**10**	**Low**	-	High
	degree to which impact can be reversed:	Recoverable							
	degree of impact on irreplaceable resources:	None							

Transmission Line No-Go Alternative									
Potential Impact	**Mitigation**	**Extent (E)**	**Duration (D)**	**Magnitude (M)**	**Probability (P)**	**Significance (S=(E+D+M)*P)**		**Status (+ve or -ve)**	**Confidence**
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline Route 1									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

Pipeline No-Go Alternative									
None.	**Nature of impact:**								
	with								
	without								
	degree to which impact can be reversed:								
	degree of impact on irreplaceable resources:								

6. MITIGATION AND MANAGEMENT MEASURES

The size of the proposed wet ash disposal facility (with an estimated maximum height of 44m) is not possible to mitigate. The following mitigation is, however possible:

6.1. Planning phase

OBJECTIVE: The mitigation of visual impacts associated with the planning of the proposed wet ash disposal facility and associated infrastructure.

Project Component/s	The proposed wet ash disposal facility, transmission lines and pipeline.		
Potential Impact	Primary visual impact due to the presence of the wet ash disposal facility and the transmission lines as well as the visual impact of lighting at night.		
Activity/Risk Source	The viewing of the above mentioned by observers on or near the site (i.e. within 1 km of the site) as well as within the region.		
Mitigation: Target/Objective	Optimal planning of infrastructure to minimise visual impact.		
Mitigation: Action/control		**Responsibility**	**Timeframe**
Plan to retain / reinstate vegetation in all areas not directly affected by the development footprint. Consolidate and concentrate on-site infrastructural requirements to maximise vegetated areas.		Eskom / design consultant	Planning phase.
Where possible, create vegetated buffer areas (with a minimum width of 4m) along the perimeter of the site, and especially between the site and sensitive visual receptors (i.e. users of roads and residents of homesteads and settlements in close proximity). This will increase the perceived distance between the receptor and the site, as the receptor no longer feels on the 'doorstep' of the facility. Consult an ecologist with respect to species types, mix and placement.		Eskom / design consultant	Planning phase.
Where appropriate (i.e. where there are sensitive visual receptors) consider supplementing planting in vegetated areas and buffers to increase VAC. Consult an ecologist with respect to species types, mix and placement.		Eskom / design consultant	Planning phase.
Make provision to incrementally rehabilitate the wet ash disposal facility for its entire lifespan, starting as soon as possible.		Eskom / design consultant	Planning phase.
Plan and design required lighting in terms of specification and placement, in order to minimise lighting impacts. The following is recommended: o Shielding the sources of light by physical barriers (walls, vegetation, or the structure itself); o Limiting mounting heights of fixtures, or using foot-lights or bollard lights; o Making use of minimum lumen or wattage in fixtures; o Making use of down-lighters or shielded fixtures; o Making use of Low Pressure Sodium lighting or other low impact lighting. o Making use of motion detectors on security lighting. This will allow the site to remain in relative darkness, until		Eskom / design consultant	Planning phase.

lighting is required for security or maintenance purposes.		
Performance Indicator	Reduced prominence of the wet ash disposal facility and transmission lines and minimal lighting at night to observers on or near the site (i.e. within 1 km) and within the region.	
Monitoring	Not applicable.	

6.2. Construction phase

OBJECTIVE: The mitigation and possible negation of visual impacts associated with the construction of the proposed wet ash disposal facility and associated infrastructure.

Project Component/s	Construction site	
Potential Impact	Visual impact of general construction activities, and the potential scarring of the landscape due to vegetation clearing and resulting erosion.	
Activity/Risk Source	The viewing of the above mentioned by observers on or near the site (i.e. within 1 km of the site) as well as within the region.	
Mitigation: Target/Objective	Minimal visual intrusion by construction activities and intact vegetation cover outside of immediate works areas.	
Mitigation: Action/control	**Responsibility**	**Timeframe**
Ensure that vegetation is not unnecessarily cleared or removed during the construction period.	Eskom / contractor	Construction phase.
Reduce the construction period through careful logistical planning and productive implementation of resources.	Eskom / contractor	Construction phase.
Plan the placement of lay-down areas and temporary construction equipment camps in order to minimise vegetation clearing (i.e. in already disturbed areas) wherever possible.	Eskom / contractor	Construction phase.
Restrict the activities and movement of construction workers and vehicles to the immediate construction site and demarcated access roads.	Eskom / contractor	Construction phase.
Ensure that rubble, litter, and disused construction materials are appropriately stored (if not removed daily) and then disposed regularly at licensed waste facilities.	Eskom / contractor	Construction phase.
Reduce and control construction dust through the use of approved dust suppression techniques as and when required (i.e. whenever dust becomes apparent).	Eskom / contractor	Construction phase.
Restrict construction activities to daylight hours in order to negate or reduce the visual impacts associated with lighting.	Eskom / contractor	Construction phase.
Rehabilitate all disturbed areas, construction areas, servitudes etc immediately after the completion of construction works. If necessary, an ecologist should be consulted to assist or give input into rehabilitation specifications.	Eskom / contractor	Construction phase.
Performance Indicator	Vegetation cover, where it occurs, is intact with no evidence of degradation or erosion.	
Monitoring	Monitoring of vegetation clearing during construction. Monitoring of rehabilitated areas quarterly for at least a year following the end of construction.	

6.3. Operational phase

OBJECTIVE: The mitigation and possible negation of visual impacts associated with the operation of the proposed wet ash disposal facility and associated infrastructure.

Project Component/s	The proposed wet ash disposal facility, transmission lines and pipeline.		
Potential Impact	Visual impact of wet ash disposal facility itself and vegetation rehabilitation failure.		
Activity/Risk Source	The viewing of the above mentioned by observers on or near the site (i.e. within 1km of the site) and within the region.		
Mitigation: Target/Objective	Well maintained and neat facility.		
Mitigation: Action/control		**Responsibility**	**Timeframe**
Maintain the general appearance of the facility as a whole, including the wet ash disposal facility, the internal roads, servitudes and any ancillary infrastructure.		Eskom / operator	Operational phase.
Maintain roads to forego erosion and to suppress dust. Implement remedial actions as a when required.		Eskom / operator	Operational phase.
Monitor rehabilitated areas, and implement remedial action as and when required.		Eskom / operator	Operational phase.
Performance Indicator	Well maintained and neat facility with intact vegetation on and in the vicinity of the facility.		
Monitoring	Monitoring of the entire site on an ongoing basis.		

6.4. Decommissioning phase

OBJECTIVE: The mitigation and possible negation of visual impacts associated with the decommissioning of the proposed wet ash disposal facility and associated infrastructure.

Project Component/s	The proposed wet ash disposal facility, transmission lines and pipeline.		
Potential Impact	Visual impact of residual visual scarring & vegetation rehabilitation failure.		
Activity/Risk Source	The viewing of the above mentioned by observers on or near the site (i.e. within 1km of the site) and within the region.		
Mitigation: Target/Objective	Rehabilitated wet ash disposal facility that blends in with the topography and vegetation of the surrounding environment.		
Mitigation: Action/control		**Responsibility**	**Timeframe**
Remove infrastructure not required for the post-decommissioning use of the site.		Eskom / operator	Decommissioning phase.
Reshape the landform of the wet ash disposal facility to resemble / mimic that of the surrounding topography. Fully rehabilitate all areas using appropriate vegetation species. If necessary, an ecologist should be consulted to give input into rehabilitation specifications.		Eskom / operator	Decommissioning phase.
Rehabilitate access roads and servitudes not required for the post-decommissioning use of the site. If necessary, an ecologist should be consulted to give input into rehabilitation specifications.		Eskom / operator	Decommissioning phase.
Monitor rehabilitated areas quarterly for at least a year following decommissioning, and implement remedial action as and when required.		Eskom / operator	Decommissioning phase.
Performance Indicator	Intact vegetation cover on the wet ash disposal facility and in all rehabilitated areas with no evidence of degradation or erosion.		
Monitoring	Monitoring of rehabilitated areas quarterly for at least a year following decommissioning.		

7. CONCLUSIONS

The construction and operation of the proposed wet ash disposal facility and its associated infrastructure will have an impact on the visual environment especially within, 1km of the proposed site, but also within the greater region.

The wet ash disposal facility would be visible within an area that incorporates certain sensitive visual receptors. Such visual receptors include people travelling along roads, residents of homesteads and settlements and tourists visiting the region.

It is noteworthy that a high level of industrial, mining and electrical infrastructure is already present in close proximity to the proposed site. The Hendrina Power Station and the existing wet ash disposal facilitys south east of the proposed site are of particular relevance in this regard, as they render the immediate visual environment already impacted upon. As a result, the visual prominence of the proposed wet ash disposal facility is expected to be absorbed somewhat.

The following is a summary of anticipated post mitigation visual impacts anticipated as a result of the proposed wet ash disposal facility and associated infrastructure:

Visual impacts related to Construction include the following:

- **Wet ash disposal facility Site E:**
  - The potential visual impact of construction on sensitive visual receptors in close proximity to the proposed wet ash disposal facility and within the region will be of **low significance**.

- **Wet ash disposal facility No-Go Alternative:**
  - No impact.

- **Transmission Line Corridors 2, 3 and 4:**
  - The potential visual impact of construction on sensitive visual receptors in close proximity to the transmission lines and within the region will be of **low significance**.

- **Transmission Line No-Go Alternative:**
  - No impact.

- **Pipeline Route 1:**
  - The potential visual impact of construction on sensitive visual receptors in close proximity to the pipeline and within the region will be of **low significance**.

- **Pipeline No-Go Alternative:**
  - No impact.

Visual impacts related to Operation include the following:

- **Wet ash disposal facility Site E:**
  - The potential visual impact on sensitive visual receptors in close proximity to the proposed wet ash disposal facility will be of **moderate significance**.
  - The potential visual impact on sensitive visual receptors within the region will be of **low significance**.

- The potential visual impact on commuters traveling by rail in close proximity to the proposed wet ash disposal facility and within the region will be of **low significance**.
- The potential visual impact of lighting at night on sensitive visual receptors in close proximity to the proposed wet ash disposal facility and within the region will be of **low sig**nificance.
- The potential visual impact of the proposed wet ash disposal facility on visual character of the landscape and sense of place of the region will be of **low significance**.
- The potential visual impact of the proposed wet ash disposal facility on tourist access routes within the region will be of **low significance**.

- **Wet ash disposal facility No-Go Alternative:**
  - No impact.

- **Transmission Line Corridors 2, 3 and 4:**
  - The potential visual impact on sensitive visual receptors in close proximity to the transmission line and within the region will be of **low significance**. Corridor 2 is favoured from a visual perspective, however as this alignment is the shortest and represents consolidation and concentration of infrastructure. This approach is favoured from a visual perspective.

- **Transmission Line No-Go Alternative:**
  - No impact.

- **Pipeline Route 1 and No-Go Alternative:**
  - No impact.

Visual impacts related to Decommissioning include the following:

- **Wet ash disposal facility Site E:**
  - The potential visual impact of site works on sensitive visual receptors in close proximity to the proposed wet ash disposal facility and within the region will be of **low significance**.
  - The potential visual impact of the rehabilitated wet ash disposal facility on sensitive visual receptors in close proximity to the proposed wet ash disposal facility will be of **moderate significance. This is a positive impact**.
  - The potential visual impact of the rehabilitated wet ash disposal facility on sensitive visual receptors within the region will be of **moderate significance. This is a positive impact**.

- **Wet ash disposal facility No-Go Alternative:**
  - No impact.

- **Transmission Line Corridors 2, 3, 4 and No-Go Alternative:**
  - No impact.

- **Pipeline Route 1 and No-Go Alternative:**
  - No impact.

Cumulative visual impacts include the following:

- **Wet ash disposal facility Site E:**
  - Potential visual impact on sensitive visual receptors in close proximity to the proposed wet ash disposal facility will be of **moderate significance**.

- Potential visual impact on sensitive visual receptors within the region will be of **low significance**.

- **Wet ash disposal facility No-Go Alternative:**
  - No impact.

- **Transmission Line Corridors 2, 3 and 4**
  - The potential visual impact on sensitive visual receptors in close proximity to the transmission line and within the region will be of **low significance**.

- **Transmission Line No-Go Alternative:**
  - No impact.

- **Pipeline Route 1 and No-Go Alternative:**
  - No impact.

The above summary clearly shows that the No-Go Alternative for all aspects of the proposed development will result in the least visual impact, and the maintenance of the visual status quo.

Failing that, however, the anticipated visual impacts persisting post mitigation range from moderate to low significance, and none are considered to be fatal flaws for the proposed wet ash disposal facility and associated infrastructure. The main considerations in this regard are the relatively low occurrence of potential visual receptors and the visual context of existing industrial, mining and electrical type infrastructure in close proximity to the proposed site.

Considering all factors, it is recommended that the development of the wet ash disposal facility as proposed be supported, subject to the implementation of the recommended mitigation measures (Chapter 6). The development of the proposed pipeline is also supported, as is Transmission Line Corridor 2, which is the most favouable by virtue of concentration and consolidation of infrastructure.

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