PROPOSED VANDYKSDRIFT CENTRAL (VDDC) SECTION: MINING AND INFRASTRUCTURE DEVELOPMENT, Mpumalanga

SOCIAL IMPACT ASSESSMENT

FINAL REPORT

JONES & WAGENER REFERENCE: G535

Submitted to:
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Submitted by:
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October 2019
**GLOSSARY OF ABBREVIATIONS**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tr>
<td>DMR</td>
<td>Department of Mineral Resources</td>
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<tr>
<td>DWS</td>
<td>Department of Water and Sanitation</td>
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<tr>
<td>EA</td>
<td>Environmental Authorisation</td>
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<tr>
<td>EAP</td>
<td>Environmental Assessment Practitioner</td>
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<td>EIA</td>
<td>Environmental Impact Assessment</td>
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<tr>
<td>ELM</td>
<td>eMalahleni Local Municipality</td>
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<tr>
<td>EMP</td>
<td>Environmental Management Programme</td>
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<td>EMPR</td>
<td>Environmental Management Programme Report</td>
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<td>IDP</td>
<td>Integrated Development Plan</td>
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<tr>
<td>IWULA</td>
<td>Integrated Water Use Licence Application</td>
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<td>IWWMP</td>
<td>Integrated Water and Waste Management Plan</td>
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<tr>
<td>J&amp;W</td>
<td>Jones &amp; Wagener Engineering and Environmental Consultants</td>
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<tr>
<td>LoA</td>
<td>Life of Asset</td>
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<tr>
<td>LoOP</td>
<td>Life of Operations</td>
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<tr>
<td>NDM</td>
<td>Nkangala District Municipality</td>
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<td>ROM</td>
<td>Run of Mine</td>
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<td>SIA</td>
<td>Social Impact Assessment</td>
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<tr>
<td>SKS</td>
<td>Steenkoolspruit</td>
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<tr>
<td>SMME’s</td>
<td>Small, Medium, Micro Enterprises</td>
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<tr>
<td>StatsSA</td>
<td>Statistics South Africa</td>
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<td>South32</td>
<td>South32 SA Coal Holdings (Pty) Ltd</td>
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<td>VDDC</td>
<td>Vandyksdrift Central</td>
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<td>WTP</td>
<td>Water Treatment Plant</td>
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<td>WMLA</td>
<td>Waste Management Licence Application</td>
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DOCUMENT STATUS

SOCIAL IMPACT ASSESSMENT:

Social Impact Assessment Report for public review

Date: 1 October 2019

Author: Ms. Ingrid Snyman: Batho Earth

Signature: [Signature Image]
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1. **INTRODUCTION**

South32 SA Coal Holdings (Pty) Ltd (South32)\(^1\) is the holder of an amended mining right for coal, granted by the Minister of Mineral Resources, in terms of the Mineral and Petroleum Resources Development Act (MPRDA) and notarially executed on the 21\(^{st}\) of May 2015 under DMR reference MP30/5/1/2/2/379MR, in respect of its Wolvekrans – Ifalethu Colliery.\(^2\)

The Wolvekrans – Ifalethu Colliery comprises of the following sections:

- Ifalethu Colliery (previously referred to as Wolvekrans North Section)\(^3\) consisting of the Hartbeestfontein, Bankfontein (mining now ceased), Goedehoop, Klipfontein sections and the North Processing Plant Wolvekrans North Section consisting of the Hartbeestfontein, Bankfontein (mining now ceased), Goedehoop, Klipfontein sections and the North Processing Plant. This was previously known as Middelburg Colliery; and

- Wolvekrans Colliery (previously referred to as the Wolvekrans South Section) consisting of the Wolvekrans, Vlaklaagte (mining ceased), Driefontein, Boschmanskrans, Vandyksdrift, Albion and Steenkoolspruit sections, as well as the South Processing Plants (Eskom and Export). Some of these areas were previously known as Douglas Colliery.

The Vandyksdrift Central (VDDC) area falls within the footprint of historic underground mining operations at the old Douglas Colliery. In 2007, an amendment of the Environmental Management Programme Report (EMPR) for the Douglas Colliery operations was approved, to allow pillar mining (opencast) of the area previously mined by underground bord and pillar mining. Authorisation of the VDDC mining project included the following:

- Opencast operation on the farm Kleinkopje 15 IS;
- Opencast operation on the farm Steenkoolspruit 18 IS;
- Pillar extraction operation on the farm Vandyksdrift 19 IS;
- Reclamation of existing slurry ponds; and
- Rewashing of existing discard dumps (PHD, 2006).

The water uses associated with the opencast mining have been authorised in terms of Water Use Licence (WUL) number 24084535 dated 10 October 2008, issued to Douglas Colliery Services Limited.

The No. 2 seam workings are flooded with water and must be dewatered to enable the open pit development to proceed. A dewatering strategy has therefore been developed and an application for Environmental Authorisation (EA) of the dewatering activities was submitted to the Department of Mineral Resources (DMR) (Jaco-K Consulting, 2016(a)); a decision in this

\(^1\) South32 SA Coal Holdings (Pty) Ltd was formerly known as BHP Billiton Energy Coal South Africa (Pty) Limited, (“BECWA”) and will be referred to as South32 for purposes of this report


\(^3\) This was previously referred to as Middelburg Colliery
regard is pending. The water use activities associated with this upfront dewatering strategy have been authorised by WUL number 06/B11F/GCIJ/7943 dated 19 July 2018.

The 2007 approved EMPR Amendment included limited additional infrastructure in support of the opencast mining operations, as it was assumed at that stage that existing infrastructure will be used. In addition, the applications for authorisation of the activities associated with the dewatering strategy, were limited to the infrastructure to facilitate dewatering (i.e. dewatering boreholes, pumps, pipelines, storage tanks, mechanical evaporators, roads and power lines).

A pre-feasibility investigation has since been conducted, and the need to develop additional infrastructure to support the proposed opencast mining was identified. The additional infrastructure includes the following:

- Storm water management structures (drains and berms);
- Water management measures;
- Overburden dumps;
- ROM coal stockpile areas;
- Mixed ROM coal and slurry stockpile areas;
- Topsoil stockpiles following clearance of vegetation;
- Pipelines for the conveyance of water;
- Hard park area and brake test ramp; and
- Haul roads and service roads.

The proposed VDDC opencast pit boundary as determined through the pre-feasibility investigation also differs from the mining area approved in the 2007 EMPR amendment. An area of approximately 196 hectares in the latest mine lay-out was not included in the previous mine lay-out and is therefore not approved to be opencast mined. The area where the existing LAC dump is located, as well as a small area further north-east, were not included in the approved 2007 EMPR Amendment, and therefore requires authorisation for opencast mining (Also refer to Figure 5: Proposed Opencast Extension).

Jones & Wagener Engineering and Environmental Consultants (J&W) has been appointed by South32 as an independent Environmental Assessment Practitioner (EAP) to undertake an Integrated Regulatory Process (IRP) to obtain the required approvals/authorisations for the required infrastructure development to enable South32 to continue with opencast mining at VDDC.

The environmental applications include:

1.1 Background to the Proposed Project and Study Area

The Wolvekrans – Ifalethu Colliery is an opencast mine using dragline, as well as truck and shovel operations, to extract coal and is located to the south-east of eMalahleni within the eMalahleni Local Municipality’s (ELM) jurisdiction. Ga-Nala (Kriel) is situated to the south of the colliery. The surface rights of the study area are largely owned by Ingwe Surface Holdings Ltd (South32).

The VDDC Mining and Infrastructure Development Project is a brownfields project within the greater Wolvekrans Colliery mining right area. VDDC is located on the western boundary of Wolvekrans Colliery and mainly falls within Ward 32 of the ELM. The site is approximately 30 km to the south east of eMalahleni town and to the west of the R544. The Duvha Power Station is in close proximity to the site. The VDDC footprint falls within a portion of the area used for the former Douglas Colliery underground mining. The Olifants River forms the southern boundary.

The proposed infrastructure and mining development will take place on the farms Kleinkopje 15 IS, Vandyksdrift 19 IS, Wolvekrans 17 IS and Steenkoolspruit 18 IS.

The VDDC area falls within the footprint of historic underground mining operations at the old Douglas Colliery. In 2007, an amendment of the Environmental Management Programme Report (EMPR) for the Douglas Colliery operations was approved, to allow pillar mining (opencast) of the area previously mined by underground bord and pillar mining. Authorisation of the VDDC mining project included the following:

- Opencast operation on the farm Kleinkopje 15 IS;
- Opencast operation on the farm Steenkoolspruit 18 IS;
- Pillar extraction operation on the farm Vandyksdrift 19 IS;
- Reclamation of existing slurry ponds; and
- Rewashing of existing discard dumps (PHD, 2006).

The water uses associated with the opencast mining has been authorised in terms of water use licence number 24084535 dated 10 October 2008.

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4 www.south32.net
The No. 2 seam workings are flooded with water and have to be dewatered to enable the open pit development to proceed. A dewatering strategy has therefore been developed and an application for Environmental Authorisation (EA) of the dewatering activities has been submitted to the Department of Mineral Resources (DMR). In addition, an Integrated Water Use Licence Application (IWULA) has been submitted to the Department of Water and Sanitation (DWS) for the water use activities associated with the dewatering strategy$^5$ and the water use licence was issued in July 2018.

1.2 Map of the Study Area

The following figure indicates the location of the proposed VDDC Mining and Infrastructure Development Project.

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Figure 1: Proposed VDDC Infrastructure Development Project: Location
1.3 Locality and Land-Use

The existing authorized mining activities and the proposed infrastructure development falls within Ward 32 of the ELM. A small section of the northern section of the VDDC complex falls within the southern section of Ward 19.

The project area is characterised by extensive mining operations.

Farming is still undertaken within sections of the overall study area, adjacent and in close proximity to mining activities. Mining activities, however, are encroaching on the overall available farmland. Farming mainly includes crop production (maize) and cattle farming.

The project area is to the west of the R544 and west of the R544-R542 intersection. Different mining collieries/settlements are located along route R544 in the southeastern extents of the Municipality between Ga-Nala and eMalahleni City near the VDDC complex. These settlements developed in the mining belt and are mostly associated with the mining operations, power stations or railway stations respectively. These settlements have limited engineering service capacity and are not supported by any secondary economic base.

The formal Van Dyksdrift Settlement was demolished (in approximately 2012), but some informal settlements still remain in the area.

The Lindokuhle settlement, situated to the south of the mining activities and to the west of the R544, is such an informal settlement. The Izingulubeni settlement, that was situated to the south of the railway line and in close proximity to Lindokuhle, was demolished in approximately 2014. Two small retail facilities within the area are the Ideal Shopping Complex located at the entrance to Lindokuhle and the Vaalkrans complex near the R544-R542 intersection. The Van Dyksdrift area was classified as a fourth order development node according to the eMalahleni IDP.

The following settlements and sensitive receptors in close proximity to the proposed VDDC Infrastructure Development Project were identified:

- Lindokuhle settlement located south-east (approximately 1 km from the mining area) of the proposed infrastructure development. Lindokuhle has a small shopping complex (Ideal Supermarket).
- Springbok settlement situated approximately 3 km northeast of the proposed VDDC project along the R544.
- Kwajuma settlement located north-west of Springbok and approximately 2.5 km to the northeast of the northern boundary of the VDDC project.
- The old Anglo Village situated to the east of the R544 in very close proximity to the southeast of Kwajuma settlement.

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7 Based on information obtained from Google Earth
• The Springbok Colliery Primary School is situated in the former Rethabile area (demolished in approximately 2017). This area is to the east of the R544 and R542, and approximately 1 km from the VDDC project’s eastern boundary.

• Further informal settlements were identified at the following locations:
  • Opposite the entrance to the VDDC complex to the east of the R544;
  • Approximately 500 m to the south of the Vaalkrans shopping complex, to the east of the R542;
  • North east (approximately 700 m) of the Springbok Colliery Primary School;
  • In close proximity to the Bezuidenhoutsrus area of the railway line which is located to the south west of the project area in the direction of the R547; and
  • To the south of the project area along the R544 (east of the R544) near the road that links the R544 and the R547.

Various individual homesteads and farm buildings are further scattered across the wider study area e.g. south of Kwajuma, and two building complexes to the southwest of the southern boundary of the proposed development and Lindokuhle.

Thubelihle and Ga-Nala is approximately 20 km to the south along the R544.

The Lindokuhle and Kwajuma settlements, as well as the other informal settlements, do not seem to have access to any municipal infrastructure such as water and electricity. These settlements with poor living conditions are generally accessed via dirt roads.

Find a Google Earth image of the main settlements in Figure 2 below.
Figure 2: Settlements within the study area
1.4 Technical Details of the Project

1.4.1 Existing Facilities

A short outline of the existing approved facilities at the existing operations is given below to allow a better understanding of the need for the proposed new infrastructure.

The existing facilities at the Steenkoolspruit (SKS) operations include the ROM tip and the overland conveyor system to the South Export Plant, the SKS complex offices, warehouse, change houses, workshops, wash bays, laydown areas, a sewage treatment plant and fuelling facilities. The southern SKS facilities currently in use by the Vandyksdrift North (VDDN) operation include contractors’ offices, as well as a fuel, lube, air and coolant (FLAC) station8.

An existing topsoil dump is located on the north-eastern boundary of the VDDC section with surface discard dumps on the southern portion of the VDDC resource area, namely the PSS and LAC dumps. A number of clean and dirty water management berms and canals have been constructed to ensure that runoff is managed.

Two Run-of-mine (ROM) coal stockpiles have been developed:

- A ROM coal pad located between the SKS void and the haul road, from where it is taken to the South Export Processing Plant via conveyors from the SKS crushing plant;
- A ROM stockpile area to the south of the Vleishaft Dam (an existing Pollution Control Dam), of which a portion is currently used as a hard park area.

Various existing haul roads are in place within the mining area.

The following map indicates the existing infrastructure.

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Figure 3: VDDC: Existing infrastructure
1.4.2 Proposed New Infrastructure

As indicated under Section 1, the additional infrastructure, which this application focuses on, includes the following:

- Topsoil dumps – A topsoil dump is proposed to be located adjacent to the existing topsoil stockpile in the east of the project area. In addition, provision has been made for a topsoil stockpile area in between the ramps.

- Overburden Dumps - The boxcut will be done using a combination of dragline and truck and shovel. Overburden from the boxcut will be placed on four overburden dumps located in between the proposed ramps. In addition, two overburden dumps are proposed. A new overburden dump will be developed in the south-east of the project area and the existing overburden dump at the SKS pit will also be used.

- ROM stockpiles and Mixed ROM coal and slurry stockpile areas for the storage of material. The mixed material will be allowed to dewater for a period before it is removed to the existing SKS tip, from where it will be taken to the South Export Processing Plant. ROM coal from the No. 4 and No. 5 seams will be placed on transfer stockpiles. These stockpiles will be located on a partially reclaimed area of the PSS dump footprint. The stockpile positions will be moved as mining progresses but will remain within the footprint of the existing PSS dump or other previously mined out or disturbed areas;

- Storm water management structures, pollution control berms and drains;

- A proposed Water Treatment Plant (WTP) for the treatment of mine impacted water which will have a maximum capacity of 20 Mt/day;

- Pipelines for the conveyance of water (These pipes will be 450 to 600 mm in diameter and different pipes will convey mine impacted water between the transfer tanks and the Vleishaft dam, and between the Vleishaft dam and the new evaporator site at the SKS void); and

- New haul roads and service roads which will include:
  - Temporary high wall roads and dragline walkways which will be re-established as mining progresses;
  - Earth Moving Equipment (EME) haul roads (40 m width) from the bottom of box cut ramps to the existing haul roads;
  - Additional maintenance/service and access roads within the VDDC project area from the existing infrastructure to the box-cut;
  - New haul road to the No. 4 seam and No. 5 seam stockpiles;

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• Construction of a new explosives magazine (the existing facility will be moved the north of Pit 4);

• A hard park will be developed between the Vleishaft Dam and the SKS pit. The hard park will include perimeter drains that convey polluted water runoff (primarily polluted with silt) to the SKS void;

• A brake test ramp will be provided for EME traffic at the hard park area.

The water requirements for the VDDC mining project will include the following usages:

• Potable water for human consumption or use in restrooms supplied by the existing SKS complex’s water supply;

• Wash water for wash-down, either of vehicles, workshops or conveyor bunds supplied by the existing SKS complex’s water supply;

• Water for dust suppression on bulk materials handling systems which will be sourced from mine impacted water;

• Water for dust suppression on haul roads;

• Fire water supplies; and

• Sewerage reticulation.

In order to manage the inflow of water into the mining operations, sumps will be constructed in the pit floor where the water will be collected at the bottom of the pit (at lowest points) and pumped out of the pit to the Vleishaft Dam and from there, to one of the evaporator sites, or to the proposed modular WTP or to Vlaklaagte void.

Access to the VDDC project area is via one of three existing approaches, depending on the size of the transport namely:

• Current SKS main entrance;

• Current Wolvekrans main entrance (via BMK workshops);

• Current VDD main entrance (opposite Springbok settlement).

All personnel transport and light delivery vehicles will enter the site via the current SKS main entrance. Personal vehicles will park in the existing and extended personnel vehicle parking, whilst busses will drop personnel off at the existing bus turnaround.

The construction phase is anticipated to be between 18 – 24 months and is planned to commence in July 2020, should the necessary environmental applications have been approved. The operational phase is expected to commence in January 2022. The following map provides an outline of the infrastructure proposed (Refer to Figure 4).
Figure 4: VDDC: Proposed Infrastructure
1.4.3 Change to opencast mining

The VDDC mine lay-out as determined through the pre-feasibility investigation, as well as the mine-lay-out included in the approved 2007 EMPR Amendment is shown on Figure 5: Proposed Opencast Extension. The area where the existing LAC dump is located, as well as a small area further north-east, were not included in the approved 2007 EMPR Amendment, and therefore requires authorisation for opencast mining.
Figure 5: Proposed Opencast Extension
2. **DEFINITION OF A SOCIAL IMPACT ASSESSMENT**

Burdge (1995) describes a Social Impact Assessment (SIA) as the “...systematic analysis in advance of the likely impacts a development event (or project) will have on the day-to-day life (environmental) of persons and communities.” A SIA therefore attempts to predict the probable impact of a development (before the development actually takes place) on people’s way of life (how they live, work, play and interact with one another on a daily basis), their culture (their shared beliefs, customs and values) and their community (its cohesion, stability, character, services and facilities), by:

- Appraising the social impacts resulting from the proposed project;
- Relating the assessed social impacts of the project to future changes in the socio-economic environments that are not associated with it. This would serve to place the impacts of the project into context;
- Using the measurements (rating) to determine whether the impacts would be negative, neutral or positive;
- Determining the significance of the impacts; and
- Proposing mitigation measurements.

An SIA is thus concerned with the human dimensions of the environment, as it aims to balance social, economic and environmental objectives and seeks to predict, anticipate and understand the potential impacts of development.

The usefulness of an SIA as a planning tool is immediately clear, in that it can assist the project proponent to conceptualise and implement a project in a manner which would see the identified negative social impacts addressed through avoidance or mitigation and the positive impacts realised and optimised. It would also allow the community to anticipate, plan for and deal with the social changes once they come into effect. In this sense then, the SIA is an indispensable part of the environmental processes and any participative activity (e.g. community involvement in mitigation and monitoring during planning and implementation).

3. **PURPOSE OF THE REPORT**

The purpose of the SIA report is to provide the findings of the SIA undertaken during the EIA Phase through the following.

- Provide a brief overview of the current socio-economic status of the area and the social characteristics of the receiving environment;
- Review and update existing Baseline Studies in support of Applications for Environmental Authorisation, Waste Management Licence and Water Use Licence: Infrastructure Development in support of VDDC Mining;
- Indicate the anticipated core impact categories and impact areas (possible hot spots);
- Identify anticipated positive socio-economic impacts of the proposed project, including positive impacts and provide management measures for these impacts;
• Identify and highlighting negative social impacts (social hot spots) of the proposed project and indicate mitigation measures to deal with these impacts; and

• Present the findings, recommendations and conclusions of the social study.

4. LEGAL REQUIREMENTS AND GUIDELINES

4.1 General

The Environmental Management Programme Report (EMPR) for the Douglas Colliery operations was amended and approved in 2007, to allow the opencast mining of the remaining coal reserves (extraction of remaining pillars, roof and floor) via opencast mining.

The following authorisations, however, will now be required for the proposed infrastructure and mining:

• Application for Environmental Authorisation through a Scoping and Environmental Impact Assessment Report (S&EIAR) process and the compilation of an Environmental Management Programme (EMPr) in terms of the National Environmental Management Act, 1998 (Act 107 of 1998; NEMA) and its Regulations;

• Waste Management Licence Application (WMLA) in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008; NEM:WA);

• Integrated Water Use Licence Application (IWULA) in terms of the National Water Act, 1998 (Act 36 of 1998; NWA), including an Integrated Water and Waste Management Plan (IWWMP); and

A Social Impact Assessment is required to be completed in support of the environmental authorisations for the Infrastructure and mining Development. The SIA will update information as included in the previous studies undertaken in 2013. It will further determine whether the proposed infrastructure development would have any negative impacts with regards to the social environment.

4.2 Checklist: Requirements for Specialist Reports, as Contained in the 2014 EIA Regulations as amended

Table 1: Requirements for specialist reports, as contained in the 2014 EIA Regulations as amended

<table>
<thead>
<tr>
<th>EIA REGULATIONS 2014 GNR 982 Appendix 6</th>
<th>Status / Cross-reference in this Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTENT OF THE SPECIALIST REPORTS</td>
<td></td>
</tr>
<tr>
<td>a) details of the specialist who prepared the report; and the expertise of that specialist to compile a specialist report including a curriculum vitae;</td>
<td>Sections 13 and 14</td>
</tr>
<tr>
<td>b) a declaration that the specialist is independent in a form as may be specified by the competent authority;</td>
<td>Section 15</td>
</tr>
<tr>
<td>EIA REGULATIONS 2014 GNR 982 Appendix 6 CONTENT OF THE SPECIALIST REPORTS</td>
<td>Status / Cross-reference in this Report</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>c) an indication of the scope of, and the purpose for which, the report was prepared</td>
<td>Sections 1 and 3</td>
</tr>
<tr>
<td>cA) an indication of the quality and age of base data used for the specialist report</td>
<td>Statistics from Census 2011 were used. Where available statistics from Household Survey of 2016 (StatsSA) were used.</td>
</tr>
<tr>
<td>cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change</td>
<td>Sections 7 and 8</td>
</tr>
<tr>
<td>d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;</td>
<td>Section 6.1</td>
</tr>
<tr>
<td>e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;</td>
<td>Section 6</td>
</tr>
<tr>
<td>f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;</td>
<td>Sections 7 and 8</td>
</tr>
<tr>
<td>g) an identification of any areas to be avoided, including buffers;</td>
<td>Sections 7 and 8</td>
</tr>
<tr>
<td>h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers</td>
<td>Sections 1.2, 1.2 and 1.3</td>
</tr>
<tr>
<td>i) a description of any assumptions made and any uncertainties or gaps in knowledge;</td>
<td>Section 5</td>
</tr>
<tr>
<td>j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;</td>
<td>Section 11</td>
</tr>
<tr>
<td>k) any mitigation measures for inclusion in the EMPr</td>
<td>Section 8</td>
</tr>
<tr>
<td>l) any conditions for inclusion in the environmental</td>
<td>Section 11</td>
</tr>
</tbody>
</table>
## CONTENT OF THE SPECIALIST REPORTS

<table>
<thead>
<tr>
<th>Status / Cross-reference in this Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>authorisation;</td>
</tr>
<tr>
<td>m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;</td>
</tr>
<tr>
<td>n) a reasoned opinion</td>
</tr>
<tr>
<td>• whether the proposed activity, activities or portions thereof should be authorised;</td>
</tr>
<tr>
<td>• regarding the acceptability of the proposed activity or activities; and</td>
</tr>
<tr>
<td>• if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;</td>
</tr>
<tr>
<td>o) a description of any consultation process that was undertaken during the course of preparing the specialist report;</td>
</tr>
<tr>
<td>p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and</td>
</tr>
<tr>
<td>q) any other information requested by the competent authority</td>
</tr>
<tr>
<td>2) Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.</td>
</tr>
</tbody>
</table>

### 5. GAPS, LIMITATIONS AND ASSUMPTIONS

With regards to the SIA undertaken, the following should be noted:

- A SIA aims to identify possible social impacts that could occur in future. These impacts are based on existing baseline information. There is thus always an uncertainty with regards to the anticipated impact actually occurring, as well as the intensity thereof. Impact predictions have been made as accurately as possible based on the information available at the time of the study.

- Sources consulted are not exhaustive and additional information can still come to the fore to influence the contents, findings, ratings and conclusions made.
• Additional information may become known or available during a later stage, which could not have been allowed for at the time of the study.

• Technical and other information provided by the client is assumed to be correct.

• Individuals view possible social impacts differently due to their association with the anticipated impact. Impacts could therefore be perceived and rated differently than those contained in the SIA Report.

• Attempts were made to contact private property owners and the local councillor (Also refer to Section 6.6). Although interviews could only be conducted with some property owners, it is not anticipated that it would influence the findings of the report.

6. METHODOLOGY

The broad steps followed as part of the study are discussed below.

6.1 Site Visit

A site visit was undertaken on 31 July 2018. The aim for the consultants was to familiarise themselves with the site and possibly affected areas, as well as to obtain an overview of the social characteristics of the study area and the social setting of the proposed expansion project.

6.2 Scope of the Assessment

Based on information received from Jones and Wagener, the scope of the assessment was determined. The assessment consisted of a desktop study.

6.3 Literature Review, Analysis and Desktop Studies

The literature review assisted the consultant in confirming the social setting and characteristics of the study area, as well as the key economic activities. Data studied included Google Earth, the census data, project maps, project related documents compiled as part of the Van Dykdrift Central Project and the VDDC Infrastructure Development Project, as well as planning documentation of the ELM e.g. the Integrated Development Plan (IDP).

6.4 Baseline Profile

Profiling involves a description of the social characteristics and history of the area being assessed, an analysis of demographic data, changes in the local population, and the land-use pattern in the study area, as well as any other significant developments in the area and thus social character over time.

6.5 Reporting

Positive and negative impacts to be expected during the construction and operational phases have been identified and noted in the Report.

6.6 Consultation

Interviewing of Interested and Affected Parties forms part of the research process (Refer to Section 12.2). A discussion guideline was developed which was used to obtain information
from these key stakeholders. The aim was to gather specific information related to the social environment and insight into their perceptions with regards to the proposed development.

The Background Information Document (BID) and the discussion guideline were e-mailed to the councillor of Ward 32 and property owners whose contact details were available. This was followed up with telephonic interviews. To date, various attempts were made to contact the councillor and select property owners. Information obtained from those with whom interviews did take place, were included as part of the document.

6.7 Significance Criteria

The anticipated social impacts were rated according to a rating approach used and specified by Jones and Wagener (Pty) Ltd. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

- Significance;
- Spatial scale;
- Temporal scale;
- Probability; and
- Degree of certainty.

A combined quantitative and qualitative methodology will be used to describe the impacts for each of the aforementioned assessment criteria. A summary of each of the qualitative descriptors along with the equivalent quantitative rating scale for each of the aforementioned criteria is given in Table 2.

**Table 2: Quantitative rating and equivalent descriptors for the impact assessment criteria**

<table>
<thead>
<tr>
<th>RATING</th>
<th>SIGNIFICANCE</th>
<th>EXTENT SCALE</th>
<th>TEMPORAL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>VERY LOW</td>
<td>Isolated corridor / proposed corridor</td>
<td>Incidental</td>
</tr>
<tr>
<td>2</td>
<td>LOW</td>
<td>Study area</td>
<td>Short-term</td>
</tr>
<tr>
<td>3</td>
<td>MODERATE</td>
<td>Local</td>
<td>Medium-term</td>
</tr>
<tr>
<td>4</td>
<td>HIGH</td>
<td>Regional / Provincial</td>
<td>Long-term</td>
</tr>
<tr>
<td>5</td>
<td>VERY HIGH</td>
<td>Global / National</td>
<td>Permanent</td>
</tr>
</tbody>
</table>

A more detailed description of each of the assessment criteria is given in the following sections.
6.7.1 Nature

The nature of the impact is the consideration of what the impact will be and how it will be affected. This description is qualitative and gives an overview of what is specifically being considered. That is, the nature of the impact considers ‘what is the cause, what is affected, and how is it affected?’ This is discussed below each identified combination of factor and project phase.

6.7.2 Level of Significance

Significance rating (importance) of the associated impacts embraces the notion of extent and magnitude, but does not always clearly define these since their importance in the rating scale is very relative. A more detailed description of the impact significance rating scale is given in the table below:

Table 3: Description of the significance rating scale

<table>
<thead>
<tr>
<th>RATING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>VERY HIGH</td>
</tr>
<tr>
<td>4</td>
<td>HIGH</td>
</tr>
<tr>
<td>3</td>
<td>MODERATE</td>
</tr>
<tr>
<td>2</td>
<td>LOW</td>
</tr>
<tr>
<td>1</td>
<td>VERY LOW</td>
</tr>
<tr>
<td>0</td>
<td>NO IMPACT</td>
</tr>
</tbody>
</table>
6.7.3 Spatial Scale

The spatial scale refers to the extent of the impact i.e. will the impact be felt at the local, regional, or global scale. The spatial assessment scale is described in more detail in the table below:

Table 4: Description of the spatial rating scale

<table>
<thead>
<tr>
<th>RATING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Global/National</td>
</tr>
<tr>
<td>4</td>
<td>Regional/Provincial</td>
</tr>
<tr>
<td>3</td>
<td>Local</td>
</tr>
<tr>
<td>2</td>
<td>Study Area</td>
</tr>
<tr>
<td>1</td>
<td>Isolated Sites / proposed site</td>
</tr>
</tbody>
</table>

6.7.4 Duration Scale

In order to accurately describe the impact it is necessary to understand the duration and persistence of an impact in the environment. The duration or temporal scale is rated according to criteria set out in the following table.

Table 5: Description of the temporal rating scale

<table>
<thead>
<tr>
<th>RATING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Incidental</td>
</tr>
<tr>
<td>2</td>
<td>Short-term</td>
</tr>
<tr>
<td>3</td>
<td>Medium term</td>
</tr>
<tr>
<td>4</td>
<td>Long term</td>
</tr>
<tr>
<td>5</td>
<td>Permanent</td>
</tr>
</tbody>
</table>

6.7.5 Degree of Probability

The probability or likelihood of an impact occurring will be described as shown below:
Table 6: Description of the degree of probability of an impact occurring

<table>
<thead>
<tr>
<th>RATING</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Practically impossible</td>
</tr>
<tr>
<td>2</td>
<td>Unlikely</td>
</tr>
<tr>
<td>3</td>
<td>Could happen</td>
</tr>
<tr>
<td>4</td>
<td>Very Likely</td>
</tr>
<tr>
<td>5</td>
<td>It’s going to happen / has occurred</td>
</tr>
</tbody>
</table>

6.7.6 Quantitative Description of Impacts

To allow for impacts to be described in a quantitative manner in addition to the qualitative description given above, a rating scale of between 1 and 5 was used for each of the assessment criteria. Thus the total value of the impact is described as the function of significance, spatial and temporal scale as described below.

\[
\text{Impact Risk} = (\text{SIGNIFICANCE} + \text{Spatial} + \text{Temporal}) \times \text{Probability}
\]

The above rating is applied as follows:

Table 7: Example of Rating Scale

<table>
<thead>
<tr>
<th>IMPACT</th>
<th>SIGNIFICANCE</th>
<th>SPATIAL SCALE</th>
<th>TEMPORAL SCALE</th>
<th>PROBABILITY</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>E.g. Impact to air</td>
<td>LOW</td>
<td>Local</td>
<td>Medium Term</td>
<td>Could Happen</td>
<td></td>
</tr>
<tr>
<td>E.g. Impact to</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Note: The significance, spatial and temporal scales are added to give a total of 8, that is divided by 3 to give a criteria rating of 2.67. The probability (3) is divided by 5 to give a probability rating of 0.6. The criteria rating of 2.67 is then multiplied by the probability rating (0.6) to give the final rating of 1.6.

The impact risk is classified according to 5 classes as described in the table below.

Table 8: Impact Risk Classes

<table>
<thead>
<tr>
<th>RATING</th>
<th>IMPACT CLASS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1 – 1.0</td>
<td>1</td>
<td>Very Low</td>
</tr>
<tr>
<td>1.1 – 2.0</td>
<td>2</td>
<td>Low</td>
</tr>
<tr>
<td>2.1 – 3.0</td>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>3.1 – 4.0</td>
<td>4</td>
<td>High</td>
</tr>
<tr>
<td>4.1 – 5.0</td>
<td>5</td>
<td>Very High</td>
</tr>
</tbody>
</table>
7. BASELINE DESCRIPTION OF THE RECEIVING ENVIRONMENT

7.1 Nkangala District Municipality

The Nkangala District Municipality (NDM) is a Category C municipality in the Mpumalanga Province. It comprises six local municipalities: Victor Khanye, eMalahleni, Steve Tshwete, Emakhazeni, Thembisile Hani, and Dr JS Moroka. The NDM has 160 towns and villages under its jurisdiction.\(^{10}\)

The district is host to the Maputo corridor which brings increased potential for economic growth and tourism development. In addition, the district shares the western side of its borders with the economic hub of Gauteng which opens up opportunities to a larger market, which is of benefit to the district’s agricultural and manufacturing sectors. There is further potential in exporting goods that provides opportunities within the district.\(^{11}\)

The NDM’s economy is dominated by electricity, manufacturing and mining. These sectors are followed by community services, trade, finance, transport, agriculture and construction. The relatively large economies of Steve Tshwete LM (Middelburg) and eMalahleni LM (Witbank/eMalahleni) sustain the economy of the Nkangala District to a large extent and are based on the steel industry with high reliance on the manufacturing sector.\(^{12}\)

However, the NDM is not exempt from the difficulties facing all municipalities in South Africa. Poverty and unemployment in the rural areas are a major threat to socioeconomic growth.\(^{13}\)

7.2 eMalahleni Local Municipality

The ELM has a mining and industrial history and is thus the most industrialised municipal area in the NDM. eMalahleni Municipality consists of the towns of eMalahleni, Ga-Nala (formerly Kriel) including Thubelihle and Ogies, including Phola, Rietspruit, Van Dyksdrift and Wilge.

The town of eMalahleni mainly came about due to mining, electricity and industrial activities in the area and is still surrounded by various mining activities as well as some farming activities such as the cultivation of crops. The landscape and land-use mainly consist of rural areas with scattered towns, as well as underground and opencast coalmines. The area also has the largest concentration of power stations in the country. The coal deposits and power stations in the southern section of the municipality thus have a major influence on the settlement patterns in the area. The fragmented development pattern is further intensified by the large areas that are undermined or those that have mining rights.\(^{14}\)

A key objective remains to prevent mining activity from encroaching onto high potential agricultural land and areas of high biodiversity; and to ensure that the areas of mining

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\(^{10}\) www.nkangaladm.gov.za

\(^{11}\) www.localgovernment.co.za

\(^{12}\) www.localgovernment.co.za

\(^{13}\) www.nkangaladm.gov.za

activity are properly rehabilitated and that the agricultural value of the land be restored once the mineral resources are depleted.

The following map indicates the location of the ELM in relation with the other local municipalities within the NDM.

Figure 6: eMalahleni Local Municipality\textsuperscript{15}

![Map showing the location of eMalahleni Local Municipality within the NDM.]

The area surrounding eMalahleni does not lend itself to major tourism activities, as it is primarily a mining and farming area. The only conservation area under the jurisdiction of the ELM is the eMalahleni Nature Reserve established around the eMalahleni Dam\textsuperscript{16}.

The Vandyksdrift and the Izingulubeni Settlements that were in close proximity to the VDDC project have been demolished, but some informal settlements still remain in the area such as the Lindokuhle settlement situated to the south of the mining activities.\textsuperscript{17} To the north east of the proposed infrastructure development is the Springbok settlement, which developed as a mining town\textsuperscript{18}. The Ideal Shopping Complex is situated at the entrance to Lindokuhle and the Vaalkrans complex is near the R544-R542 intersection.

Various informal settlements and some farm buildings/homesteads were further identified. Also refer to Section 1.3 for a description of the land-use and sensitive receptors in the area.

The proposed infrastructure development project mainly falls within Ward 32. A small section of the northern section of the VDDC complex falls within the southern section of Ward 19. Ward 25’s northern boundary is in close proximity to the southern boundary of the VDDC complex area.

Statistics from these three wards will thus be included in the section below.

\begin{itemize}
\item \textsuperscript{15} www.demarcation.org.za
\item \textsuperscript{16} eMalahleni Local Municipality (2017). Draft Integrated Development Plan 2018-2019
\item \textsuperscript{17} eMalahleni Local Municipality (2015). Spatial Development Framework
\item \textsuperscript{18} eMalahleni Local Municipality (2015). Spatial Development Framework
\end{itemize}
7.3 Population Dynamics

7.3.1 Population Figures

In 2011, the eMalahleni population was 395 466 individuals. According to the 2016 Community Survey, the population of the eMalahleni Local Municipality totals approximately 455 228 individuals, with 150 420 households and a 3.2% average annual population growth rate. As the economy of the eMalahleni area provides various employment opportunities, a large influx of individuals to the ELM area are experienced\(^{19}\).

The eMalahleni municipal population is expected to increase to 516 399 individuals in 2020 and 646 708 individuals in 2030\(^{20}\).

The following table provides an outline of the population figures in the wards in the study area. Ward 32 has a total population of 11 507 individuals.

**Table 9: Population figures**

<table>
<thead>
<tr>
<th>Population figures within wards(^{21})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td>Ward 19</td>
</tr>
<tr>
<td>Ward 25</td>
</tr>
<tr>
<td>Ward 32</td>
</tr>
</tbody>
</table>

7.3.2 Age Structure and Gender

The age structure of the eMalahleni Local Municipality indicates a fairly young population, as 25.2% of the local population is under the age of 14. Those within the working age (15-64) forms 71.2% of the local population\(^{22}\).

This young population would in future put extreme pressure on the socio-economic fabric of the area. Pro-active planning with regards to employment creation, social activities, recreational facilities, sports and educational facilities, medical facilities, the development of the youth, training and capacity building programmes, would therefore be imperative.

From the table below it is clear that the age structure in the wards also reflect a very young population profile, which, in Wards 19 and 32, is even higher compared to the municipal average. This highlights the need for the provision of employment opportunities that would match the skills in the area.

\(^{19}\) eMalahleni Local Municipality (2017). Draft Integrated Development Plan 2018-2019


\(^{21}\) StatsSA: 2011 Census

\(^{22}\) Statssa.gov.za
Table 10: Age Structure

<table>
<thead>
<tr>
<th>Ward</th>
<th>Population under 15</th>
<th>Population 15 to 64</th>
<th>Population over 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 19</td>
<td>2 101 (21%)</td>
<td>7 397 (76%)</td>
<td>227 (2%)</td>
</tr>
<tr>
<td>Ward 25</td>
<td>4 276 (28%)</td>
<td>10 293 (69%)</td>
<td>371 (2%)</td>
</tr>
<tr>
<td>Ward 32</td>
<td>2 595 (22%)</td>
<td>8 719 (75%)</td>
<td>255 (2%)</td>
</tr>
</tbody>
</table>

Within Wards 19 and 32, 48% of the population is males\(^\text{24}\).\(^\text{24}\)

7.3.3 Population Stability

The increase in the population figure as a result of the average growth rate, but also due to the in-migration of various people from outside the municipality might be due to mining industries and businesses within the eMalahleni area. This trend impacts on the population stability and further results in the following social challenges:

- Informal settlements and back rooms – estimated 10 000 people residing in these areas;
- The provision of water supply to informal settlements without resident contributing to these services;
- Additional pressure on the provision of water, sanitation, and electricity infrastructure;
- Additional pressure on the local roads resulting in poor quality roads without sufficient capacity to handle the traffic volumes; and
- Increase in unemployment particularly amongst youth and unskilled which might impact on issues of crime, prostitution, and drug abuse\(^\text{25}\).

According to information obtained, the majority of the population within Ward 19 (92.9%) and within Ward 32 (90.4%) were born in South Africa\(^\text{26}\).

7.4 Education Levels

According to the Department of Education there are currently 34 pre-schools in the Emalahleni municipality. There are 58 primary schools and 19 secondary schools servicing the area and four tertiary education facilities in the Emalahleni area. The Edupark in eMalahleni

\(^{23}\) StatsSA: 2011 Census
\(^{24}\) www.wazimap.co.za
\(^{26}\) www.wazimap.co.za
consists of the Tshwane University of Technology, Pretoria University and Unisa. The eMalahleni College is situated in the CBD in close proximity to the municipal offices. The other tertiary institutions are the Mpondozankomo Technical College in Ackerville and the Coal Training College in Klipfontein. 

The ELM’s performance with regards to the level of education obtained is higher compared to the other local municipalities in the Nkangala District. The 2011 highest level of education profile indicates a large proportion of individuals within the local municipality (49.8%) have at least a secondary (Grade 8-12) level of education. However, the majority still have only grade 12 qualifications with a small percentage who have obtained some secondary education. The rural areas also still have the highest level of “No Schooling”. Vocational skills training for local industries and motivating individuals to obtain a Grade 12 (or equivalent) qualification is still necessary.

The educational profiles of those in the affected wards are similar to the figures of the ELM.

Table 11: Education Profiles

<table>
<thead>
<tr>
<th>MUNICIPALITY / WARD</th>
<th>NO SCHOOLING</th>
<th>GRADE 12</th>
<th>HIGHER EDUCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nkangala District Municipality</td>
<td>9%</td>
<td>35%</td>
<td>8.7%</td>
</tr>
<tr>
<td>eMalahleni Local Municipality</td>
<td>6%</td>
<td>31%</td>
<td>14%</td>
</tr>
<tr>
<td>Ward 19</td>
<td>5%</td>
<td>33%</td>
<td>16%</td>
</tr>
<tr>
<td>Ward 25</td>
<td>10%</td>
<td>25%</td>
<td>2%</td>
</tr>
<tr>
<td>Ward 32</td>
<td>9%</td>
<td>27%</td>
<td>4%</td>
</tr>
</tbody>
</table>

7.5 Socio-Economic Environment

7.5.1 Labour Market

In 2011, the unemployment rate was 27.3% and the youth unemployment rate 36%. The Community Survey of 2016 indicates that 23.2% of the local population is unemployed.

This unemployment rate is similar to that of the District. With such a large local economy, a lower unemployment rate is expected. Many people migrate to ELM in search of

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29 www.localgovernment.co.za
31 www.statssa.gov.za
employment, but might not have the right skills to work in the local economy and thus put more pressure on the provision of services and infrastructure.

The investment climate of the municipality needs to improve and be conducive so it can accommodate the new job seekers. The municipality also needs to increase the levels of education and skills to improve the employability of young people.

The following table provides an outline of the employment profile of the residents of the wards within the area:

<table>
<thead>
<tr>
<th>WARD</th>
<th>Employed</th>
<th>Unemployed</th>
<th>Discouraged work-seeker</th>
<th>Other not economically active</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ward 19</td>
<td>4261 (57%)</td>
<td>1133 (15%)</td>
<td>252</td>
<td>1751</td>
</tr>
<tr>
<td>Ward 25</td>
<td>4805 (46%)</td>
<td>2559 (25%)</td>
<td>445</td>
<td>2483</td>
</tr>
<tr>
<td>Ward 32</td>
<td>4304 (49%)</td>
<td>1372 (16%)</td>
<td>759</td>
<td>2285</td>
</tr>
</tbody>
</table>

### 7.5.2 Income Levels

In 2016, the average annual household income was R120 492, but 14% of the population still received no income.

The average annual household income is higher than the District average household income. The high average income and education levels should reflect a lower unemployment rate which means that there are more opportunities for employment for highly skilled workers, which again, highlights the importance of high levels of education.

Significant concentrations of people living under the Minimum Living Level (MLL) occur within eMalahleni. It is evident that 67.1% of households within the ELM earn an annual income well below the MLL, with the highest percentages of these households located in Emalahleni Rural (78.7%) and Emalahleni West (78.0%). The low income levels is concerning as it...

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indicates high dependency levels of households on government grants, subsidies and services. Specific areas of concentration include eMalahleni, Ogies and Ga-Nala\textsuperscript{35}.

The people that depend on grants have increased from 34,849 to 89 585 people between 2012 to 2017. The grant with the largest recipients is the child support grant followed by old age grant.

Within Ward 32 the average annual household income was R29 400 which is more or less similar than those in ELM. Within Ward 19, the average annual household income was R57 300 which is double the amount compared to those within Ward 32\textsuperscript{36}.

7.5.3 Poverty

According to the 2016 Community Survey of StatSA, the so-called poverty headcount (multidimensionally) of eMalahleni deteriorated from 8.0% in 2011 to 10.9% in 2016 and is the second highest in the Province. The so-called poverty intensity also increased from 43.6% to 45.4% in the same period\textsuperscript{37}.

7.6 Household Profile and Services

The number of informal dwellings in the ELM increased from 23 138 in 2011 to 34 845 in 2016, which is an increase of more than 11 000 households\textsuperscript{38}. According to information obtained, 56% of the population within Ward 32 lives in formal structures, while 15.2% lives in informal dwellings or shacks.

Accelerated service delivery is the key. Strong collaboration between the municipality, relevant national, provincial departments and public entities in prioritizing building of houses should be considered.

The Municipality is both a Water Services Authority (WSA) and a Water Services Provider (WSP). There are three water schemes operating in the Municipality, namely the:

- Witbank Water Treatment Works;
- Ga-Nala Water Treatment Works; and
- Rietspruit Water Treatment Works

The infrastructure, however, is approximately fifty years old and has reached the end of its designed life. The Municipality is planning to improve the reliability of the distribution network, including the refurbishment of its water treatment plant in eMalahleni, reducing the water losses, improving on the quality of water supplied, improving on the Blue Drop status targets and enhancing scheduled deliveries of portable water through water tankers.

\textsuperscript{35} eMalahleni Local Municipality (2015). Spatial Development Framework
\textsuperscript{36} Wazimap.co.za
\textsuperscript{38} eMalahleni Local Municipality (2017). Draft Integrated Development Plan 2018-2019
The number of households with access to piped water is 136,628 households with a share of 90.8% of households having access to piped water. There is however, 13,792 or 9.2% of households without access to piped water in 2016.

In Wards 32, 19 and 25 the majority of households received their water via a regional/local water scheme operated by a Water Service Authority or provider. However, in Ward 19 (856 households) and in Ward 32 (507 households) a number of households still depend on borehole water for household purposes.

The number of households with access to flush/chemical toilets improved in the relevant period is 108,868 households or a percentage access of 72.4% of households however, 2,186 households are without any toilet facilities (no toilets). The majority of households in Wards 19 and 32 have access to a flush toilet that is connected to a sewerage system.

Households with a connection to electricity were 106,306, which constitutes 70.7% in 2016. Within the area, 40,721 households are not connected to electricity at all, which is more than a quarter of the households. From information obtained from the 2011 Census, the majority of households within Wards 19 and 32 have access to electricity.

### 7.7 Infrastructure

The road infrastructure connecting eMalahleni to the rest of the country is extensive. The main road infrastructure consists of the N4 and N12 freeways which connects eMalahleni with Gauteng, as well as the rest of Mpumalanga (Nelspruit area) and Maputo. Running parallel to the N4 is a rail line that connects Gauteng through eMalahleni to Maputo.

Regional (provincial) roads further span the EML area e.g. the R104, R544, R545, R547, R555, R575, and R580. Most of these routes serve as freight routes for the transport of coal from mines to the power stations in the municipal area. These roads thus carry high traffic volumes, and typical with most rural type areas in South Africa, there is still a great need for upgrading and maintenance of this existing road infrastructure.

Maintenance and upgrading on other infrastructure also remains critical due to the general decline of infrastructure that has outlived their lifespan.

### 7.8 Community Health

According to Mpumalanga Department of Health, the HIV prevalence rate of eMalahleni was measured at 40.7% in 2013 (latest available figure). The eMalahleni Local Municipality has a shortage in terms of adequate basic health care services. Aspects that put additional pressure on these are the growing population, the poverty levels of the residents in the area, the spread of HIV/AIDS and the enlargement of formal and informal settlements.

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39 StatsSA: 2011 Census  
40 StatsSA: 2011 Census  
Within the Van Dyksdrift area there is only one mobile clinic functioning. The Naledi Clinic is situated at Naledi Village which is situated along the R575 nor the north of the VDDC area. The Impungwe District Hospital situated on the outskirts of eMalahleni is the nearest hospital to the area. Ga-Nala and Thubelihle have two clinics, which are thus approximately 20 km from the proposed site.

7.9 Crime

Crime is a source of concern within the area, especially within the informal settlements where unemployment levels are high. Residents in these areas usually resort to illegal activities as a source of income.

The Blinkpan Police Station, near Komati, is the nearest station to the study area. According to information from the SAPS, the major crimes noted at the Blinkpan Station includes theft, burglaries, drug related crime and contact crime\(^\text{43}\).

It is thus unlikely that the criminal incidents would decrease should unemployment in the area prevails.

7.10 Profile of the Local Economy

The average annual economic growth rate for eMalahleni was at 2.4% over the period 1996 to 2015. The forecasted average annual GDP growth for eMalahleni for 2015-2020 is anticipated to be more or less 2% per annum in line with national and provincial growth expectations.

However, the local economy is not diversified due to the mining industry (44% of the GVA) which contributes the most to the local economy. This is followed by the utilities (11% of GVA) and trade sectors (9% of GVA). Mining also remains the most prominent sector in terms of its employment contribution with 23%, followed by the trade sector which provides 18% of the employment in the ELM area. The community and finance sectors both provide 12% of the employment\(^\text{44}\).

In 2013, the eMalahleni GDP was R 58.1 billion. This figure indicates a 48.26% contribution to NDM GDP of R 120 billion in the same year and a 20.92% contribution to the GDP of Mpumalanga Province\(^\text{45}\).

eMalahlani is also one of the municipalities which experienced population growth rates higher than their economic growth rates, which has significant negative implications from a GDP per capita and an infrastructure, service delivery, and job creation point of view.

\(^{43}\) www.saps.gov.za

\(^{44}\) eMalahleni Local Municipality (2017). Draft Integrated Development Plan 2018-2019

8. IMPACTS ASSOCIATED WITH THE PROPOSED VDDC INFRASTRUCTURE DEVELOPMENT PROJECT

The VDDC Infrastructure Development Project is a brownfields project within the greater mining right area. It should thus again be noted that extensive mining activities are already being undertaken in the area. The impacts of the current operations have thus been assessed prior to the specific mining activities commencing. An area of approximately 196 hectares in the latest mine lay-out was not included in the previous mine lay-out and is therefore not approved to be open-cast mined. This impact assessment will therefore focus on the additional infrastructure development proposed as part of the VDDC project, as well as the open-cast mining that was not previously authorised.

The following section provides a brief description of the social impacts anticipated to occur during the construction and operational stages of the proposed Infrastructure and Mining Development.

8.1 Employment Opportunities, Local Procurement and Inflow of Workforce

The development focuses on the employment creation associated with the erection, management and maintenance of the required infrastructure and activities associated with the open-cast mining that was not previously authorised.

Therefore, it is anticipated that the development would result in limited additional employment opportunities with a temporary increase in the concentration of workers at the VDDC e.g. during the construction of the haul roads. Limited new opportunities such as some short term contract work could be generated for certain periods of time. Locals could be part of the teams involved in the short term contracts. Other activities associated with the development (e.g. topsoil and overburden dumps) would mainly entail mechanical operations and the associated activities would be seen as extensions of the existing mining activities and open-cast mining.

Thus, even though the Wolvekrans – Ifalethu Colliery is operational and provides employment to various individuals and the fact that a large sector of the employed homeowners within the area are employed at the various mines in the area, the ELM IDP indicated that job creation within the Van Dyksdrift area remains a critical need.

During the operation of the mining activities and thus the functioning of the proposed infrastructure, maintenance, supervision and monitoring teams would be on site. Maintenance is expected to include emergency repairs, routine maintenance and general maintenance of the mining infrastructure which would be undertaken by a relative small group of individuals as it is anticipated that the operations would be mainly mechanically operated and maintained. These maintenance activities would not result in various employment opportunities.

With the number of employees currently concentrated within the study area, the possible slight increase in workers during the construction and operational phase on site is anticipated to have a limited impact on the social environment.
The positives with regard to employment creation thus remain with possible procurement of local small businesses and Small, Medium, Micro Enterprises (SMME’s) with regards to the design, procurement, installation, construction and commissioning of the infrastructure, and open cast mining.

Table 12: Employment Opportunities, Local Procurement and Inflow of Workers

<table>
<thead>
<tr>
<th>PHASES</th>
<th>Construction Phase</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior to enhancement</td>
<td>Post Enhancement</td>
</tr>
<tr>
<td>Significance (S)</td>
<td>Low (2)</td>
<td>Moderate (3)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
<td>Regional/Provincial (4)</td>
<td>Local (3)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
<td>Short-term (2)</td>
<td>Short-term (2)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
<td>Could Happen (3)</td>
<td>Could Happen (3)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR) (S + SS + DS /3)</td>
<td>2.6</td>
<td>2.6</td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
<td>1.56</td>
<td>1.56</td>
</tr>
<tr>
<td>Impact Risk Class</td>
<td>Low (1.56)</td>
<td>Low (1.56)</td>
</tr>
</tbody>
</table>

Enhancement:
- Communities within close proximity to the mining activities should be given preference if any new employment opportunities will be created, as these communities will be mostly affected by the existing approved mining activities and proposed infrastructure development.
- Procurement and recruitment of individuals should be undertaken through formalised structures and according to processes that are in line with international best-practice standards.
- Procurement of goods, services, material and equipment should be focused on the local area where economically feasible.
- Sub-contractors should adopt a recruitment policy to enhance employment positive impacts, limit in-migration of outside jobseekers and mitigate the potential impact of residual in-migration.

8.2 Inflow of Jobseekers

The Wolvekrans – Ifalethu Colliery is operational and provides employment to various individuals. Even though a large sector of the homeowners within the municipal area is
employed at the various mines in the area, the ELM IDP and Community Survey of 2016 indicated that 23.2% of the local population is still unemployed. The eMalahleni Municipality further experiences large scale in-migration to the ELM in search of employment. Some do not have the right skills to work in the local economy and thus put more pressure on the provision of services and infrastructure.

Even though the development is anticipated to create limited employment opportunities, it is possible that jobseekers could gather at the entrance to the colliery, due to the social profile of the local residents and residents of the larger municipal area. The distance of the settlements of Lindokuhle, Springbok and Kwajuma to the mining activities and the infrastructure development, as well as the socio-economic profile of the residents makes this impact even more likely.

The magnitude of the inflow of jobseekers, however, is difficult to predict. Even though there is a low probability of it resulting in severe negative impacts, pro-active mitigation measures should be implemented to address the issue and to avoid possible long term negative impacts in this regard (e.g. outsiders remaining in the area putting additional pressure on the local infrastructure and services, especially housing which is already a concern in the municipal area).

Table 13: Inflow of Jobseekers

<table>
<thead>
<tr>
<th>IMPACT: INFLOW OF JOBSEEKERS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASES</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Significance (S)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR)</td>
</tr>
<tr>
<td>(S + SS + DS /3)</td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
</tr>
<tr>
<td>Impact Risk Class</td>
</tr>
</tbody>
</table>

Mitigation:
8.3 Impact on Daily Living and Movement Patterns

Depending on the size of the vehicles transporting personnel, equipment, goods and mining material, access to the VDDC project area would be undertaken via the following options:

- Current SKS main entrance;
- Current Wolvekrans main entrance (via BMK workshops);
- Current VDD main entrance (opposite Springbok settlement)\(^{46}\).

All personnel transport and light delivery vehicles will enter the site via the current SKS main entrance. Personal vehicles will park in the existing and extended personnel vehicle parking, whilst busses will drop personnel off at the existing bus turnaround\(^{47}\).

Light delivery vehicles and heavy delivery vehicles up to 10t single body trucks will also enter via the existing SKS main entrance and deliver to the required location, or to the existing store facilities. The heavy delivery vehicles and lowbeds will access the site either via the WVK main entrance or the VDD main entrance depending on the destination on the VDDC Project area\(^{48}\).

New roads required for the VDDC project include:

- Temporary high wall roads and dragline walkways which will be re-established as mining progresses;
- Earth Moving Equipment (EME) haul roads (40 m width) from the bottom of box cut ramps to the existing haul roads;
- Additional maintenance/service and access roads within the VDDC project area from the existing infrastructure to the box-cut;

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- New haul road to the No. 4 seam and No. 5 seam stockpiles.\textsuperscript{49}

These new roads are all located within the mining area and will not impact on daily movement.

The R544 is the main access route to the study area from Emalahleni and to the entrances discussed above. This road is already under pressure due to the existing traffic volumes. Construction related vehicles could have a further negative impact on the local roads, especially the R544 and smaller dirt roads (if used). Negative impacts relate to possible damage to the road surface and an increase in the traffic volumes which could pose an additional traffic safety risks to the road users and pedestrians. According to the eMalahleni SDF, the R544 has been listed as a priority road for maintenance.

The increased traffic volumes and construction of internal roads within the VDDC mining area could have negative impacts on the social environment due to increased noise and dust and possible health related impacts due to the gaseous emissions of the increased vehicular traffic. The intended use of existing haul roads and service roads could, however, limit this possible negative impact.

The above negative impacts should, however, be evaluated taking the existing impacts of the approved mining activities into consideration. This status quo and the limited direct impact that the proposed infrastructure development would have on the daily living and movement patterns of residents and road users were thus considered in the rating below.

**Table 14: Impact on Daily Living and Movement Patterns**

<table>
<thead>
<tr>
<th>PHASES</th>
<th>Construction Phase</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior to mitigation</td>
<td>Post Mitigation</td>
</tr>
<tr>
<td>Significance (S)</td>
<td>Low (2)</td>
<td>Low (2)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
<td>Local (3)</td>
<td>Local (3)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
<td>Short-term (2)</td>
<td>Short-term (2)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
<td>Could Happen (3)</td>
<td>Unlikely (2)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR) (S + SS + DS /3)</td>
<td>2.3</td>
<td>2.3</td>
</tr>
</tbody>
</table>

8.4 Residential Proximity

Van Dyksdrift has historically served a residential function, but the formal Van Dyksdrift Settlement was demolished, and only some informal settlements remained. There are two small retail facilities at Van Dyksdrift.

The proposed new mining and infrastructure developments would take place within the greater Wolvekrans – Ifalethu Colliery mining right area. It should further be noted that the mines have become an infrastructural feature in the area over time. Even though the Lindokuhle informal settlement is situated in close proximity to the southern portion of the VDDC opencast mining area and some of the new infrastructure proposed, the proposed development, together with the other existing mining activities in the area, is not expected to severely change the residents’ type of lifestyle with resultant impacts on the local sense of place. It should be further noted that the mining development will be phased over an extended period. Intrusive visuals impacts due to the infrastructure are therefore considered of a low significance considering the existing status quo.

Other intrusion impacts anticipated to influence the daily living conditions of the Lindokuhle residents refer to noise and dust pollution. Ideally, residents should not live in such proximity to mining activities. The present activities have existing impacts on these residents, and the infrastructure development is not anticipated to worsen this existing impact. The extension of the open cast mining activities that would be phased over an extended period, however, could result in additional noise and dust. Any possible negative impacts in this regard must however be strictly mitigated.

Ongoing monitoring of possible negative impacts on the residents of the Lindokuhle Settlement should be undertaken to determine whether any specific mitigation measures would be required in future.

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Table 15: Residential Proximity

<table>
<thead>
<tr>
<th>IMPACT: RESIDENTIAL PROXIMITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASES</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Significance (S)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR)</td>
</tr>
<tr>
<td>(S + SS + DS /3)</td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
</tr>
<tr>
<td>Impact Risk Class</td>
</tr>
</tbody>
</table>

Mitigation:
- During the construction of the proposed infrastructure and during the use of the infrastructure (operational phase) all activities associated with the operation and maintenance of the infrastructure should adhere to relevant regulations to limit noise and dust pollution.
- Heavy vehicles should be in good working order to limit any noise and dust pollution.
- Dust suppression methods should be strictly implemented.
- Possible negative impacts on the surrounding landowners and nearby residents should be limited to minimise any possible negative impacts on these residents’ quality of life.
- Also refer to the mitigation measures proposed as part of Sections 8.6, 8.7, 8.8, and 8.9.

8.5 Impact on Agricultural Activities

No farming activities would be affected on the proposed sites for the proposed development, as the area falls within the Wolvekrans – Ifalethu Colliery mining right area.

The main agricultural activities practiced in the larger area involve maize production with some cattle farming. Possible indirect negative impacts on such agricultural activities can occur. Should water sources be contaminated as a result of the activities associated with the infrastructure development, it could have severe negative impacts for affected farming activities, especially for landowners dependent on borehole water for agricultural and household purposes.
Dust from the topsoil dumps is also a source of concern. Any such pollution should thus be mitigated to ensure that the negative impacts do not manifest on crop production activities to the east and south of the project area. Mitigation must be implemented to ensure that no financial losses as a result of the infrastructure development on the farming practices occur.

Table 16: Impact on Agricultural Activities

<table>
<thead>
<tr>
<th>IMPACT: AGRICULTURAL ACTIVITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASES</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Significance (S)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR) (S + SS + DS /3)</td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
</tr>
<tr>
<td>Impact Risk Class</td>
</tr>
</tbody>
</table>

**Mitigation:**
- Effective management of the mining activities associated with the infrastructure development would be required to avoid any environmental pollution (e.g. water) and limiting any increase in dust levels.

8.6 Impact on Sense of Place

The social impact associated with the impact on the sense of place relates to the change in the landscape character and visual impact of the proposed mining and infrastructure such as the overburden and topsoil dumps, ROM stockpiles, and haul roads.

Mining infrastructure is usually perceived to have a visual invasiveness on the sense of place. The existing facilities as part of the current mining activities include a ROM tip, overland conveyor system, the SKS complex offices, warehouse, change houses, workshops, wash bays, laydown areas, an existing topsoil dump, surface discard dumps, water management
berms and canals, as well as fuelling facilities. A significant existing visual impact is thus present in the area.

The proposed infrastructure and open cast mining areas that were not previously authorised, would probably be visible to the residents of the Lindokuhle Settlement (approximately 1 km from the mining area). Limited natural vegetation exists and would not be able to serve as screening in this regard.

Due to the presence of the existing mining activities with various different infrastructural developments nearby (roads, mining, conveyor belts, transmission lines, railway line and so forth), it is not expected that the proposed new infrastructure and open cast mining would be perceived as an individual or new impact but would be balanced with the existing visual impact of the overall Wolvekrans - Ifalethu Colliery. Even though no additional negative impacts on the sense of place in this regard is foreseen, the impact would still be rated negative due to the intrusive visual impact of additional infrastructure and open cast mining, mainly on the Lindokuhle Settlement.

Table 17: Impact on Sense of Place

<table>
<thead>
<tr>
<th>IMPACT: SENSE OF PLACE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASES</strong></td>
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<tr>
<td></td>
</tr>
<tr>
<td>Significance (S)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR) (S + SS + DS /3)</td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
</tr>
<tr>
<td>Impact Risk Class</td>
</tr>
</tbody>
</table>

**Mitigation:**
- Appropriate site management and maintenance of the proposed infrastructure as stipulated in the EMP should be undertaken
- Rehabilitation activities should be undertaken as soon as possible or when steady state mining has been achieved to limit stockpiling
8.7 Safety and Security Risks

Safety and security issues relate to the possible inflow of workers to the area as a result of the project, the movement of mining vehicles and operation of equipment, and possible risks posed by the infrastructure itself.

As limited additional employees are foreseen and as the activities would take place within the mining right area, limited added safety and security risks are foreseen. The area where the mining and infrastructure development will take place is managed according to the mine’s security guidelines.

The area is characterised by the movement of mining related vehicles from different mines. Even though limited, the movement of heavy vehicles (associated with the infrastructure development) on public roads further poses increased accident risks. The anticipated impact would thus not materialise where the infrastructure is proposed, but as a result of all the mining activities on the public roads such as the R544.

Occupational health and safety risks associated with mining operations are always a source of concern. The proposed infrastructure could create additional safety and security risks to residents, if not properly managed. Occupational safety risks related to the functioning of the proposed infrastructure would have to be dealt with under the Occupational Health and Safety Act (1993). The EMP should also be strictly implemented, especially with regards to the proposed development that would be in close proximity to Lindokuhle.

The socio-economic conditions of residents of the informal settlements in the area indicate that those living in these settlements are mainly unemployed and could easily revert to criminal activities. The crime levels in the area are expected to continue as the proposed project would not alleviate the unemployment levels. Concerns in this regard relate to e.g. the illegal reworking of waste rock piles or selling of these products. Unauthorised entry to the mining area should thus be guarded against.
### Table 18: Safety and Security Risks

<table>
<thead>
<tr>
<th>IMPACT: SAFETY AND SECURITY RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHASES</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Significance (S)</strong></td>
</tr>
<tr>
<td><strong>Spatial Scale (SS)</strong></td>
</tr>
<tr>
<td><strong>Duration Scale (DS)</strong></td>
</tr>
<tr>
<td><strong>Degree of Probability (P)</strong></td>
</tr>
<tr>
<td><strong>Impact Risk Rating (IRR)</strong></td>
</tr>
<tr>
<td><strong>Probability Rating (PR) (P/5)</strong></td>
</tr>
<tr>
<td><strong>Final Rating (IRR x PR)</strong></td>
</tr>
<tr>
<td><strong>Impact Risk Class</strong></td>
</tr>
</tbody>
</table>

**Mitigation:**
- Risks of accidents should be recognised. Safety training should again be implemented focused on the designated drivers (employees) of heavy vehicles. The mine driving rules should be adhered to.
- Strict codes of conduct should be implemented for personnel operating heavy and light vehicles to minimize traffic hazards within the mining area.
- Construction of the different types of roads within the mining area should be done in a manner which would facilitate safe and efficient movement of material, employees as well as other mining vehicles.
- The different types of roads within the mining area should be maintained on a continuous basis to ensure safety.
- Emergency procedures should be established that provide immediate response should an accident occur within the mining area.
- Possible negative impacts on the surrounding landowners should be limited by ensuring that safety requirements within the mining area are adhered to.
- Appropriate firefighting equipment should be on site and construction workers, as well as permanent employees should be appropriately trained for fire fighting.

#### 8.8 Health Risks

Concerns revolve around the possible public health impact of the proposed infrastructure (e.g. topsoil and overburden dumps, dust pollution due to wind erosion from topsoil stockpiles (although limited) and the use of unpaved haul roads) on the health of the surrounding
landowners and communities, due to possible air/dust pollution. Dwellings could thus, especially in winter months or during windy periods, be negatively affected. Concerns also relate to the possible dust impact on agricultural practices if these are within the dispersion plume.

Gaseous emissions from construction vehicles and those vehicles on site could further impact on the air quality in the area.

The intensity would be influenced by various factors such as the prevalent wind direction and the location of the nearby settlements, as well as the mine waste management plan to be implemented.

The Air Quality Impact Assessment indicated that mining activities is one of the main contributors impacting on the air quality in the area. The proposed project is however not anticipated to increase the health risks as a result of possible increase in the air pollution (dust). Health risks, even though it could be negligible, should still be adequately dealt with and be taken into account in the monitoring processes stipulated as part of the EMP. Care should also be taken to limit any possible health related impacts by striving towards international best practice.

**Table 19: Health Risks**

<table>
<thead>
<tr>
<th>IMPACT: HEALTH RISKS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PHASES</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Significance (S)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR) ((S + SS + DS / 3))</td>
</tr>
<tr>
<td>Probability Rating (PR) ((P/5))</td>
</tr>
<tr>
<td>Final Rating ((IRR \times PR))</td>
</tr>
<tr>
<td>Impact Risk Class</td>
</tr>
</tbody>
</table>

**Mitigation:**
- Gaseous emissions should be minimized through proper operation and maintenance of vehicles
• Dust suppressants should be used on the roads within the mining area
• Fugitive dust emissions should thus be controlled through the implementation of appropriate environmental mitigation measures e.g. ongoing rehabilitation
• Possible negative impacts on the surrounding landowners and nearby residents should be limited by ensuring that health risks are minimised and mitigation measures are implemented as stipulated in the Air Quality Impact Assessment and EMP
• The addition/upgrading of an on-site clinic for mine employees could be considered
• Vehicles should be in a good working order and adhere to mine driving rules

8.9 Noise related impacts

It is not anticipated that the construction activities associated with the development of the infrastructure and the inflow of the workers to the area would significantly change the ambient noise levels in the area. Due to the existing mining activities in the area and the very limited number of workers involved in the process, the noise impacts with regards to the development of the infrastructure are therefore deemed moderate to low. Impacts of a moderate to low rating are anticipated from movement of vehicles and other machinery, based on the findings of the Noise Impact Assessment.

The impacts on the quality of life of nearby residents are thus not anticipated to be negatively impacted by the increase in noise levels as a result of the infrastructure development project.

Table 20: Noise Related Impacts

<p>| IMPACT: NOISE RELATED IMPACTS |</p>
<table>
<thead>
<tr>
<th>PHASES</th>
<th>Construction Phase</th>
<th>Operational Phase</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Prior to mitigation</td>
<td>Post Mitigation</td>
</tr>
<tr>
<td>Significance (S)</td>
<td>Low (2)</td>
<td>Low (2)</td>
</tr>
<tr>
<td>Spatial Scale (SS)</td>
<td>Study area (2)</td>
<td>Study area (2)</td>
</tr>
<tr>
<td>Duration Scale (DS)</td>
<td>Short term (2)</td>
<td>Short term (2)</td>
</tr>
<tr>
<td>Degree of Probability (P)</td>
<td>Could Happen (3)</td>
<td>Unlikely (2)</td>
</tr>
<tr>
<td>Impact Risk Rating (IRR)</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>(S + SS + DS /3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Probability Rating (PR) (P/5)</td>
<td>0.6</td>
<td>0.4</td>
</tr>
<tr>
<td>Final Rating (IRR x PR)</td>
<td>0.78</td>
<td>0.52</td>
</tr>
</tbody>
</table>
### IMPACT: NOISE RELATED IMPACTS

<table>
<thead>
<tr>
<th>Impact Risk Class</th>
<th>Very Low (0.78)</th>
<th>Very Low (0.92)</th>
<th>Low (1.38)</th>
<th>Very Low (0.92)</th>
</tr>
</thead>
</table>

**Mitigation:**
- A noise monitoring program should be implemented to ensure noise from activities and equipment meet or fall below noise guidelines
- Mitigation measures to limit any increase in noise as recommended by the Noise Impact Assessment specialist should be adhered to.

9. **DECOMMISSIONING AND CLOSURE**

Decommissioning refers to the dismantling of the infrastructure and/or replacement of the infrastructure with newer technology. Possible social impacts to be experienced during decommissioning of the infrastructure could include the following:
- Limited job losses and/or off-set by jobs created as part of decommissioning the infrastructure or supplanting it;
- Negative impact on infrastructure development and maintenance;
- A change in community infrastructure;
- A change in the industrial focus of the area;
- Disruptions and nuisance factors associated with the actual decommissioning such as noise, visual and traffic related impacts;
- Increased safety risks associated with the decommissioning of the infrastructure;
- Remnants of possible environmental impacts; and
- Remaining visual impact as a result of mining.

As decommissioning or the replacement of the infrastructure is likely to only take place within approximately 25 years, it is recommended that a detailed Social Impact Assessment be undertaken then to determine the actual impacts on the changing social environment at that stage.

10. **NO-GO ALTERNATIVE**

The infrastructure is proposed to support the proposed opencast mining and assist with the management of potential pollution sources at the mine. It is therefore necessary to ensure that the life of mine of the Wolvekrans Colliery can continue until 2046 and to ensure that the contractual obligations are met. Should this not be implemented, the socio-economic development associated with the mining activities would not materialise. In addition, any possible negative social impacts associated with the mining activities would also not occur.

The most significant social impact with regards to the no-go alternative relates to the loss in employment opportunities and the overall direct and indirect economic impacts for the region when mining ceases.
As the mine is involved in various corporate social investment programmes these would not be further implemented and no impacts on poverty alleviation would occur as a result of such programmes. The potential loss in terms of employment and economic benefits to the local communities is considered as a critical negative impact.

The ‘no-go alternative’ should thus not be considered from a social point of view as the negative social impacts anticipated with the expansion project are deemed low. The negative impacts would further respond to mitigation as proposed. The proposed activities further falls within the mining rights area and the area is already characterised by and surrounded by various mining infrastructure.

11. CONCLUDING REMARKS

Based on the social assessment, the following concluding remarks should be noted:

- The proposed mining and infrastructure development would result in limited additional employment opportunities with a temporary increase in the concentration of workers at the VDDC. Negative social impacts associated with the inflow of a large workforce are thus reduced, but the specific development would then also result in limited socio-economic benefits for the local community members. It should however, again be noted that the mine has been in operation for many years. As part of the existing operations, various social initiatives have been undertaken and different socio-economic commitments have been proposed as part of the existing Social and Labour Plan (SLP).

- The inflow of jobseekers associated with the development is likely, but even if there is a low probability of it resulting in severe negative impacts, pro-active mitigation measures should be implemented to address the issue and to avoid possible long term impacts.

- It must be noted that Lindokuhle is in close proximity to the existing mining activities. Although it is not anticipated that the proposed development would directly impact on the Lindokuhle Settlement, apart from limited noise and dust pollution, mitigation measures should be strictly implemented to avoid any possible short and long term negative impacts on the residents’ quality of life. Ongoing monitoring of possible negative impacts on the residents of the Lindokuhle Settlement should be undertaken to determine whether any specific mitigation measures would be required in future.

- It is anticipated that the negative social impacts can be mitigated by appropriate environmental mitigation measures as contained within the EMPr for the proposed infrastructure development project.

In view of the fact that mining activities are already undertaken in the area and that the proposed infrastructure and mining development will be situated within the Wolvекrans – Ifalethu Colliery Mining Right area, the proposed mining activity is not perceived to constitute a separate activity. It could rather be perceived as development associated with an existing activity. The infrastructure by itself will thus not necessarily introduce new social risks and hazards, but could increase the probability and scale of those already associated with the existing mining activities. It is therefore recommended that the proposed VDDC mining and
infrastructure development can be authorised, but that the mitigation measures contained in this document be integrated within the EMPr.

12. SOURCES CONSULTED

12.1 Documents


Nemai Consulting (2013) BHP Billiton Energy Coal South Africa (Pty) Ltd Vandyksdrift Central Project

SRK Consulting (2013) Vandyksdrift Central (VDDC) Project Preliminary Mine Closure Plan

12.2 Consultation

Mr. Peter Kane Bergman: Beestepan Boerdery: Farm Enkeldebosch 20 IS
Mr. Erasmus: Islardu Boerdery: Farm Enkeldebosch 20 IS
Ms. Thembi Shabalala: Councillor Ward 32 (attempts to conduct an interview were made)
Mr. Jaco van Dyk: Valco Boerdery: Farms Vaalkranz 29 IS and Farm Enkeldebosch 20 IS (attempts to conduct an interview were made)

12.3 Websites

www.demarcation.org.za
www.localgovernment.co.za
www.nkangaladm.gov.za
www.south32.net
www.statssa.gov.za
www.wazimap.co.za

13. EXPERIENCE RECORD OF THE SIA PRACTITIONER

Ms. Ingrid Snyman holds a BA Honours degree in Anthropology. She has more than fifteen years’ experience in the social field. Ms. Snyman has been involved in various Social Impact Assessments during her career as social scientist. These project themes consist of infrastructure development, waste management, road development, water and sanitation programmes, township and other residential type developments. She has also been involved in the design and management of numerous public participation programmes and communication strategies, particularly on complex development projects that require various levels and approaches.
### CURRICULUM VITAE: INGRID SNYMAN

<table>
<thead>
<tr>
<th><strong>Name:</strong></th>
<th>Ingrid Helene Snyman</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Profession:</strong></td>
<td>Social Development Consultant</td>
</tr>
<tr>
<td><strong>Years of Experience:</strong></td>
<td>20 + years</td>
</tr>
<tr>
<td><strong>Name of firm:</strong></td>
<td>Batho Earth</td>
</tr>
</tbody>
</table>

#### KEY QUALIFICATIONS
- Social Impact Assessment (SIA)
- Public Participation programmes
- Communication, development of community structures and community facilitation
- Community-based training and
- Workshop reports

#### EDUCATION
- 1992: B A (Political Science) University of Pretoria
- 1995: B A (Hons) Anthropology University of Pretoria
- 1996 - 1997: Train the Trainers Centre for Development Administration – UNISA

#### EXPERIENCE RECORD
- 2000 to date: Independent Development Consultant: Batho Earth

#### PROJECT EXPERIENCE

**Mining Industry**
- SEIA and PPP for the proposed Theta Hill Gold Mining Project near Pilgrim's Rest, Mpumalanga (ongoing)
- SIA for the proposed Khulu TSF at Dwarsrivier Mine, near Steelpoort, Limpopo Province (ongoing)
- Social Risk Assessment for Dwarsrivier Chrome Mine, near Steelpoort, Limpopo Province
- PPP for the development of various additional listed activities at the Dwarsrivier Chrome Mine, near Steelpoort, Limpopo Province
- SIA and Public Participation for the proposed Project 10161 and Project 10167 (Gold Mining) by Stonewall (Pty) Ltd., near Sabie and Pilgrims Rest, Mpumalanga
- SIA for the Manganese Mine North West Of Hotazel, Northern Cape (Mukulu Environmental Authorisation Project)
- SIA for the proposed South32 SA Coal Holdings Middelburg Colliery Environmental Management Plan (EMP) and Water Use Licence (WUL) Application Project (Life of Asset Open Cast Expansion and Dispatch Rider Project), Middelburg, Mpumalanga
- SIA for the proposed Manganese Mine on the Remaining Extent of the Farm Paling 434, Northern Cape Province: Revision And Amendment Of Existing Approved Environmental Management Programme (EMP) For A Mining Right
- SIA and Public Participation for the proposed Western Bushveld Joint Venture Project (Maseve Platinum Mine), North West Province
- Public Participation for Sable Platinum for the proposed prospecting application on the farm Doornpoort, Pretoria, Gauteng
- Public Participation for the prospecting application on the farms Frischgewaagd and Kleinfontein, Mpumalanga Province for PTM
- SIA to determine the impact of the Tharisa Mine on the neighbouring properties and property owners, Buffelspoort area, near Marikana, North West Province
- Public Participation for the prospecting application on the farm Klipfontein, Gauteng for PTM
- SIA as part of the Basic Assessment for the extension of the Komati coal stockyard, Mpumalanga
• SIA for the proposed Dorstfontein Mine Western Expansion Project, Kriel, Mpumalanga
• SIA for the proposed Grootboom Platinum Mine, Steelpoort, Limpopo Province
• SIA for the proposed Dorstfontein Mine Expansion Project, Kriel, Mpumalanga

**Bulk Infrastructure and Supply**
• SEIA for the proposed Greenwich Landfill Site, Newcastle, KwaZulu Natal
• SIA for the proposed Mangaung Gariep Water Augmentation Project, Free State
• SIA for the proposed development of the new Tshwane Regional General Waste Disposal Facility (Multisand Landfill), Pretoria, Gauteng Province
• SIA as part of the Basic Assessment for the proposed K97 Road northbound of the N4 at Bon Accord and investigation with regards to the possible resettlement of business premises, Pretoria, Gauteng
• SIA for the proposed extension of the Wemmershoek Wastewater Treatment Works (WWTW), decommissioning of the Franschoek WWTW and construction of a transfer and outfall sewer between the two works, Franschhoek, Western Cape
• SIA for the proposed Lefaragathle, Mogono, Rasimone, Chaneng outfall sewer and Chaneng sewer treatment plant, Rustenburg (Phokeng), North West Province
• SIA for the proposed upgrading of railway stations and railway line for Metrorail in Mamelodi, Gauteng
• SIA for the proposed ACSA Remote Aprons Project, O.R. Tambo International Airport, Gauteng
• Public Participation and SIA as part of the Environmental Scoping Study for the proposed upgrading of the Waterval Water Care Works

**Ecosystem Services Review**
• Proposed Ngonye Falls Hydro-Electric Power Plant Project, Western Province, Zambia: Biodiversity Assessment: Stakeholder Engagement Plan and Social Assessment for the Ecosystem Services Review (ESR)

**Projects related to electricity generation, transmission and distribution**
• SIA for the proposed Crowthorne-Lulamisa power line, Midrand, Gauteng
• SIA as part of the Basic Assessment for the proposed Crowthorne Underground Cable, Gauteng
• SIA as part of the Basic Assessment for the proposed Diepsloot East Servitude and substation, Gauteng
• SIA for the proposed Mitchells Plain-Firgrove-Stikland Transmission Line project and investigation with regards to the possible resettlement of individuals within Mitchells Plain, Western Cape
• SIA for the proposed 400 kV Transmission Power Line for approximately 10km to the west of the existing Marathon Substation and possible resettlement of homesteads, Nelspruit area, Mpumalanga
• SIA as part of the Basic Assessment for the proposed construction of a 400 kV transmission line between the Ferrum substation (Kathu) and the Garona substation (Groblershoop), Northern Cape Province
• SIA as part of the Basic Assessment for the proposed construction of the Eskom Rhombus-Lethabong 88kv Powerline and Substation, North West Province
• SIA for the proposed Aberdeen-Droerivier 400 kV Transmission Power Line, Eastern and Western Cape Province
• SIA for the proposed Houhoek Substation Upgrade and Bacchus-Palmiet Loop-In and Loop-Out, near Botrivier, Western Cape Province
• SIA for the proposed Arnot-Gumeni 400 kV Transmission Power Line, Mpumalanga
• SIA for the proposed Aggeneis-Oranjemond Transmission Line project, Northern Cape Province
• SIA for the proposed Ariadne-Venus Transmission Line, KwaZulu Natal
• SIA for the proposed Dominion Reefs Power Line project, North West Province
• SIA for the proposed Kyalami Strengthening Project, Kyalami, Gauteng
• SIA for the proposed Apollo Lepini 400 kV Transmission Line Project, Tembisa, Gauteng
• Public Participation for the proposed new Medupi (then referred to as Matimba B) coal-fired power station in the Lephala area, Limpopo Province
• Public Participation and SIA for the proposed Poseidon-Grassridge No. 3 400 kV Transmission line and the extension of the Grassridge Substation, Eastern Cape Province
• Public Participation and SIA for the proposed construction of power lines between the Grassridge Substation (near Port Elizabeth) and the Coega Industrial Development Zone, Eastern Cape Province
• Public Participation and SIA for the Matimba-Witkop No. 2 400 kV Transmission line, Limpopo Province

Photovoltaic and Wind Energy Facilities
• SIA for the proposed Christiana PV facility on the farm Hartebeestpan, North West Province
• SIA for the proposed Hertzogville PV facility on the farms Albert and Wigt, Free State Province
• SIA for the proposed Morgenzon PV facility on the farm Morgenzon, Northern Cape Province
• SIA as part of the Basic Assessment Process for the Exxaro Photovoltaic Facility, Lephalale, Limpopo Province
• SIA for the Upington Solar Energy Facility, Northern Cape Province
• SIA for the Kleinbegin Solar Energy Facility, Northern Cape Province
• SIA for the proposed Ilanga solar thermal power plant facility on a site near Upington, Northern Cape Province
• SIA and public participation for the proposed Karoo Renewable Energy Facility, Northern Cape
• SIA for the Wag’nbiekespan Solar Energy Facility, Northern Cape Province
• SIA for the proposed Kathu and Sishen Solar Energy Facilities, Northern Cape Province
• Public Participation and SIA for the proposed Thupela Waterberg Photovoltaic Plant, Limpopo Province
• SIA for the proposed Kannikwa Vlakte Wind Farm Project, Northern Cape

Township Developments
• SIA for the proposed Mixed Land Use Township Establishment on the Remainder of Portion 406 of the Farm Pretoria Town and Townlands 351 JR, and investigation with regards to the possible resettlement of households, Salvokop, Tshwane CBD
• SIA for the proposed Mixed Land Use Development situated on the Remainder of Allandale 10 IR, known as Rabie Ridge Ext 7, Midrand, Gauteng
• SIA as part of the Basic Assessment for the proposed development of Project One (1) of the Vosloorus Extension 9 High Density Housing Project, Ekurhuleni Metropolitan Municipality
• SIA for the proposed Mapochsgronde Residential Development, Roosnessenal, Limpopo Province
• SIA for the proposed Cullinan Estate Development, Cullinan, Gauteng
• SIA for the proposed Vlakfontein Residential Development and investigation with regards to the possible resettlement of individual households, Brakpan, Gauteng
• SIA for the proposed township development/eco-estate on the farm Grants Valley, Eastern Cape

Public Participation
• Public Participation for Dwarsrivier Chrome Mine (Pty) Ltd.: Environmental Authorisation Application for various Listed Activities at the Dwarsrivier Chrome Mine, Near Steelpoort, Limpopo Province (ongoing)
• Public Participation for the proposed piggery near Modimoletle, Limpopo Province
• Public Participation for the upgrading of the Menlyn Road Network and the investigation, as well as negotiations with regards to the resettlement of households, Pretoria, Gauteng
• Public participation and SIA for the proposed Platinum Highway Project from the N1 (Gauteng) to the Botswana Border (North West Province), including investigations with regards to the possible resettlement of individual households
15. DECLARATION OF INDEPENDENCE

I, Ingrid Snyman, declare that:

General declaration:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Batho Earth

Name of company (if applicable):

Date: 15 August 2018