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BASIC ASSESSMENT REPORT FOR THE PROPOSED DECOMMISSIONING OF THE PPC SLURRY KILN 7 AND ASSOCIATED INFRASTRUCTURE AT THE EXISTING PPC SLURRY PLANT SITUATED EAST OF MAHIKENG, NORTH WEST PROVINCE

FINAL BASIC ASSESSMENT REPORT

REFERENCE NO: NWP/EIA/24/2021

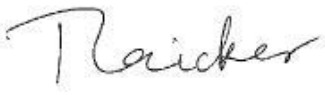
July 2021

DOCUMENT SYNOPSIS

Item	Description
Proposed development and location	The proposed decommissioning activities are planned to take place within the site boundary of the existing PPC Slurry Plant, situated on Portion 5 of the Farm Rietvallei 102 JO, North West Province
Purpose of the study	Basic Assessment Report for the proposed decommissioning of the PPC Slurry Kiln 7 and associated infrastructure, at the existing PPC Slurry Plant, situated on Portion 5 of the Farm Rietvallei 102 JO, North West Province
1:50 000 Topographic Map	Attached in Appendix C
Central Coordinates	25°48' 55.57"S; 25°50' 38.59"E
Municipalities	Ngaka Modiri Molema District Municipality
Predominant land use of surrounding area	Industrial and mining
Applicant	PPC Cement SA (Pty) Ltd
Prepared for:	**PPC Cement SA (Pty) Ltd** PPC Slurry Plant Portion 5 of the Farm Rietvallei 102 JO, North West Province Adriaan Stander General Manager T: 0186448200 adriaan.stander@ppc.co.za
Prepared by:	**Sativa Travel and Environmental Consultants (Pty) Ltd** Constantia Park, B16/5, 546, 16th road, Midrand, 1685 Tel: 010 492 4330 Fax: 086 652 9774 E-mail: environment@sativatec.co.za
Authors	Tashriq Naicker
Date of Report	July 2021

TITLE AND APPROVAL PAGE

Author:

Name	Title	Signature	Date
Tashriq Naicker	Environmental Assessment Practitioner (STEC)		**23/07/2021**

ACKNOWLEDGEMENTS

The authors acknowledge PPC Cement SA (Pty) Ltd for their assistance with project information, layouts and the associated project background Information documents (BID) as well as responding to technical queries related to the project.

EAP UNDERTAKING

THE INDEPENDENT ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

I …Tashriq Naicker……, on behalf of Sativa Travel and Environmental Consultants, as the appointed independent environmental practitioner ("EAP") hereby declare that I:

- act/ed as the independent EAP in this application;
- regard the information contained in this report to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2010 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the application was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments;
- have ensured that the comments of all interested and affected parties were considered, recorded and submitted to the competent authority in respect of the application;
- have kept a register of all interested and affected parties that participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not; and
- am aware that a false declaration is an offence in terms of the EIA Regulations.

Signature of the Environmental Assessment Practitioner:

Name of company: Sativa Travel and Environmental Consultants (Pty) Ltd

Date: 23/07/2021

EXECUTIVE SUMMARY

Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) has been appointed by PPC Cement SA (Pty) Ltd (hereafter referred to as "PPC") to undertake the required environmental legislative approval process for the proposed decommissioning of Slurry Kiln (SK) 7 with associated infrastructure at the existing PPC Slurry Plant situated near Mahikeng, North West Province via Basic Assessment (BA) process. The need and desirability for the project is rooted in the high costs of maintaining the structural integrity of the old infrastructure associated with the kiln, the fact that it will not be financially feasible to maintain the old infrastructure and in result pose a major safety risk. In return, the scrap metal that will be generated by the decommissioning of the above mentioned kiln, will have an economic value associated with it and will be sold with funds raised being absorbed into the company aiding to the unprecedented circumstances the business is facing during the global COVID-19 pandemic.

The project is located within the existing PPC Slurry Plant boundary. The decommissioning activities will be undertaken on the existing Plant footprint of 55 ha of which the decommissioning infrastructure is <1ha.

A Basic Assessment process is currently underway in line with the EIA Regulations of 2014 (as amended). Due to the nature of the development and its footprint being limited to the existing developed PPC Slurry site, no studies relating to the biodiversity will be required.

The planned mechanical demolition activities planned may also pose some air quality impacts. As such, an Air Quality Screening was undertaken to supplement the BA report and associated findings.

The Air Quality Screening concluded that the concrete structures will be dismantled and demolished mechanically using jack hammers and wrecking balls. The concrete rubble generated will be used for rehabilitation purposes within the quarries on site.

No potentially significant point sources were identified for the proposed activities. The majority of sources of emissions to atmosphere consist of materials handling for removal of rubble from the site. These sources are not expected to have a significant contribution to the ambient air quality within the area. *Notably no potentially significant emissions of other pollutants which may pose a health or environmental risk are anticipated.*

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TERMS AND DEFINITIONS

BA	Basic Assessment
BAR	Basic Assessment Report
CBA	Critical Biodiversity Areas
CMA	Catchment Management Agencies
Ha	Hectare
DEA	Department of Environmental Affairs
DWS	Department Water and Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIS	Ecological Importance & Sensitivity
ESA	Ecological Support Area
I&AP's	Interested and Affected Parties
NWDEDECT	North West Department of Economic Development, Environment, Conservation and Tourism
PDA	Primary Drainage Area
QDA	Quaternary Drainage Area
PPP	Public Participation Process
PHRA-NW	Provincial Heritage Resources Agency of North West
SAHRA	South African Heritage Resource Agency
STEC	Sativa Travel and Environmental Consultants
WMA	Water Management Areas
SACNASP	South African Council for Natural Scientific Professions
SANBI	South African National Biodiversity Institute
SWSA	Strategic Water areas of South Africa
WMA	Water Management Areas

STRUCTURE OF THE REPORT

The legislated content requirements for BARs are contained in Appendix 1 of the EIA Regulations of 2014 (as amended) (GNR 326). For ease of reference, the table below cross references the content requirements and related section number in this report.

NO.	REQUIREMENTS	APPLICABLE SECTION IN THIS REPORT
A	Details of the EAP who prepared the report, including the expertise of the EAP, including curriculum vitae.	**2**
B (i)	The location of the activity, including the 21 digit Surveyor General code of each cadastral land parcel	**4**
(ii)	The physical address and farm name of the activity	**4**
(iii)	The coordinates of the boundary of the property or properties	**4**
c	A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	**4 & Appendix C**
d	A description of the scope of the proposed activity, including a description of the activities to be undertaken and associated structures and infrastructure and including all listed and specified activities triggered and being applied for as well as the	**4**
e	A description of the policy and legislative context within which the development is proposed including an identification and description of compliance to all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report	**6**
f	A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location	**4**
g	A motivation for the preferred site, activity and technology alternative	**5**
H (i)	A full description of the process followed to reach the proposed preferred alternative within the site, including details of all the alternatives considered	**5**
(ii)	Details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs	**6**
(iii)	Summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them	**6**
(iv)	The environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	**5**
(v)	The impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including	**10**

	the degree to which these impacts- (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	
(vi)	The methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives	**10**
(vii)	Positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects	**10**
(viii)	The possible mitigation measures that could be applied and level of residual risk	**10**
(ix)	A full description of the process followed to reach the proposed preferred alternative within the site, including the outcome of the site selection matrix	**5**
(x) (xi)	A full description of the process followed to reach the proposed preferred alternative within the site, including if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such, as well as a concluding statement indicating the preferred alternatives, including preferred location of the activity	**5**
l(i)	A full description of the process and methodology used to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including a description of all environmental issues and risks that were identified during the environmental impact assessment process;	**10**
j	An assessment of each identified potentially significant impact and risk, including cumulative impacts, the nature, significance, consequences, extent, duration, probability of the impact and risk, as well as the degree to which the impact and risk may cause irreplaceable loss of resources and the degree to which the impact and risk can be avoided, managed or mitigated	**10**
k	Where applicable, a summary of the findings and impact management measures identified in any specialist report	**8**
l	An environmental impact statement which contains a summary of the key findings of the environmental impact assessment and a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers. It must also contain a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	**10**
m	Based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development for inclusion in the EMPr.	**10**
n	Any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation	**11**
o	A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed	**3**
p	A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation	**11**

q	Where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised.	**N/A**
r	An undertaking under oath or affirmation by the EAP in relation to the correctness of the information provided in the reports, the inclusion of comments and inputs from stakeholders and I&APs, the inclusion of inputs and recommendations from the specialist reports where relevant and any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties	**11**
s	Where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	**N/A**
t	Any specific information that may be required by the competent authority	**Appendix D**
u	Any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A

1 INTRODUCTION AND BACKGROUND

Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) has been appointed by PPC Cement SA (Pty) Ltd (hereafter referred to as "PPC") to undertake the required environmental legislative approval process for the proposed decommissioning of Slurry Kiln (SK) 7 with associated infrastructure at the existing PPC Slurry Plant situated near Mahikeng, North West Province, via Basic Assessment (BA) process.

The applicant wishes to decommission the above-mentioned kiln and associated infrastructure due to the inadequate structural integrity of the old infrastructure associated with the kiln, the fact that it will not be financially feasible to maintain the old infrastructure and in result pose a major safety risk. In return, the scrap metal that will be generated by the decommissioning of the above mentioned kiln, will have an economic value associated with it and will be sold with funds raised being absorbed into the company aiding to the unprecedented circumstances the business is facing during the global COVID-19 pandemic.

The project is located within the existing PPC Slurry Plant boundary. The decommissioning activities will be undertaken on the existing Plant footprint of 55 ha of which the decommissioning infrastructure is <1ha.

STEC' scope of work includes undertaking a Basic Assessment process including a Public Participation Process (PPP) in terms of chapter 6, Regulation 41 of the EIA Regulations of 2014 (as amended). The application was submitted to the competent authority on 22 April 2021, namely the North West Department of Economic Development, Environment, Conservation and Tourism (NWDEDECT) and acknowledged on 17 June 2021.

Photographs of the site and the surroundings are **attached as Appendix B** of this report. The photographs capture the site specific conditions and potential receiving environment.

1.1 ENVIRONMENTAL REQUIREMENTS

In terms of NEMA EIA Regulations, 2014 as published in Government Notice No. 326 as amended, the proposed development triggers the following activities which requires Environmental authorisation via a Basic Assessment Process:

- **Listing Notice 1: Activity 31 (GNR No. R327);**

The decommissioning of existing facilities, structures or infrastructure for—

(i) any development and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;

(ii) any expansion and related operation activity or activities listed in this Notice, Listing Notice 2 of 2014 or Listing Notice 3 of 2014;

(iv) any phased activity or activities for development and related operation activity or expansion or related operation activities listed in this Notice or Listing Notice 2 of 2014 or Listing Notice 3 of 2014; or

(v) any activity regardless the time the activity was commenced with, where such activity:
   a. is similarly listed to an activity in (i) or (ii) above; and
   b. is still in operation or development is still in progress;

excluding where –

(aa) activity 2 of this notice applies; or

(bb) the decommissioning is covered by part 8 of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) in which case the National Environmental Management: Waste Act, 2008 applies.

Where the definition of "decommissioning" as per the EIA Regulations of 2014 (as amended) means to take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned;

1.2 PURPOSE OF THE BASIC ASSESSMENT REPORT

The main purpose of this report is to:

- Determine the policy and legislative context within which the activity is located and how the activity complies with and responds to said policy and legislative context;
- Identify feasible alternatives considered, including the activity, site location, and layout alternatives;
- State the need and desirability of the proposed activity;
- Provide a description of the receiving environment that would be affected by the proposed activity;
- Identify the preferred site, which includes an impact and risk assessment process inclusive of cumulative impacts and a ranking process of the identified preferred alternatives focusing on the geographical, physical, biological, social, economic and cultural aspects of the environment;
- Determine the significance, duration and probability of the impacts occurring to inform the technology and micro siting of the activity;
- Identify the most compatible micro-siting for the activity;
- Identify, assess and rank the significant impacts and risks the activity will impose on the preferred site through the lifetime of the activity;
- Identify suitable measures to avoid, reverse, mitigate or manage identified impacts;
- Identify residual risks that need to be managed and monitored;
- Describe the public participation process that was undertaken; and
- Make recommendations for decision-making.

2 DETAILS OF EAP AND APPLICANT

2.1 DETAILS OF THE ENVIRONMENTAL CONSULTING TEAM

Sativa Travel and Environmental Consultants (Pty) Ltd (STEC) is an independent environmental consultancy appointed by PPC (the Applicant) to undertake the required Basic Assessment Process for the proposed project.

STEC does not have any financial or other interests in the undertaking of the proposed activity, other than remuneration for work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), the Environmental Impact Assessment Regulations, of 2014, as amended, and any specific environmental management Act; and does not have any vested interest in the proposed activity.

The contact details and experience of the Environmental Assessment Practitioner (EAP) undertaking the application are provided in ***Table 1* below** and proof of qualification is attached in **Appendix A**.

Table 1: EAP Details

Environmental Assessment Practitioner:	Sativa Travel and Environmental Consultants (Pty) Ltd
Contact Person:	Tashriq Naicker 
Address:	Address: Constantia Park, B16/5, 546, 16th Road Midrand, 1685
Telephone	010 492 4330
Fax	086 652 9774

E-mail	environment@sativatec.co.za
Website	www.sativatec.co.za
Expertise	Tashriq is an Environmental Practitioner with more than 12 years of experience, Tashriq Naicker specialises in the environmental management field. He has experience in South Africa, Botswana, Zambia, Ghana and Mozambique. Key experience includes: ❖ Renewable Energy Applications ❖ Oil & Gas ESIA's ❖ Environmental Impact Assessments ❖ Specialist Assistance with regard to bio-monitoring ❖ Basic Assessments ❖ Scoping & EIAs ❖ Environmental Opinions ❖ Water Use Licence Applications ❖ Waste Management Licences ❖ Mining Right Applications ❖ Section 102 Applications ❖ Geotechnical Risk Assessments ❖ Dust and Water Monitoring ❖ Section 24G Applications ❖ Due Diligence reports ❖ Peer Review on External EAP's

2.2 DETAILS OF APPLICANT/DEVELOPER

The contact details of the applicant are provided in ***Table 2*** below.

Table 2: Details of Applicant

Name of Applicant:	PPC Cement (Pty) Ltd
Contact Person	Adriaan Stander General Manager
Tel No:	T: 018 644 8200
Fax No:	018 644 0218
Email Address:	Adriaan.stander@ppc.co.za
Physical Address:	R49 between Zeerust and Mahikeng, PPC Slurry

3 ASSUMPTIONS AND GAPS IN KNOWLEDGE

The following assumptions and potential gaps in knowledge apply:

- All information provided by the applicant to the EAP was correct and valid at the time it was provided.
- The EAP does not accept any responsibility in the event that additional information comes to light at a later stage of the process.
- All data from unpublished research is valid and accurate at the time this report was written.
- The scope of this investigation is limited to assessing the potential environmental impacts associated with the proposed development only.

It should be noted that findings, recommendations and conclusions provided in this report are based on the author's best scientific and professional knowledge and experience. No part of this report may be amended or extended without prior written consent of the author. Any recommendations, statements or conclusions drawn from or based on this report must clearly cite or refer to this report. Whenever such recommendations, statements or conclusions form part of the main report to current investigation, this report must be included in its entirety.

4 PROJECT DESCRIPTION

4.1 SITE LOCATION

The project is located within the existing property boundary and footprint of the PPC Slurry Plant, situated on Portion 5 of the Farm Rietvallei 102 JO, North West Province. The decommissioning activities will be limited to the existing footprint of the kiln and associated infrastructure, which will take place within the existing site of 55 ha. Approximate center of the study site is 25°48' 55.57"S; 25°50' 38.59"E. Refer to ***Figure 1*** below as well as **Appendix C.**

4.2 PROPERTY DESCRIPTION

The properties that will be affected by the proposed project are reflected in Table 3 below.

Table 3: Properties associated with the project

Property Name	Surveyor-General Cadastral Code No.	Footprint	Coordinates
Portion 5 of the Farm Rietvallei 102 JO, North West Province	T0JO00000000010200005	55 ha (entire plant) Decommissioning activities = <1ha	25°48' 55.57"S; 25°50' 38.59"E

Table 4: Coordinates for the proposed kiln decommissioning activities

Position	Approximate Centre Point Coordinates
SK7 and various infrastructure	25°48' 55.57"S; 25°50' 38.59"E

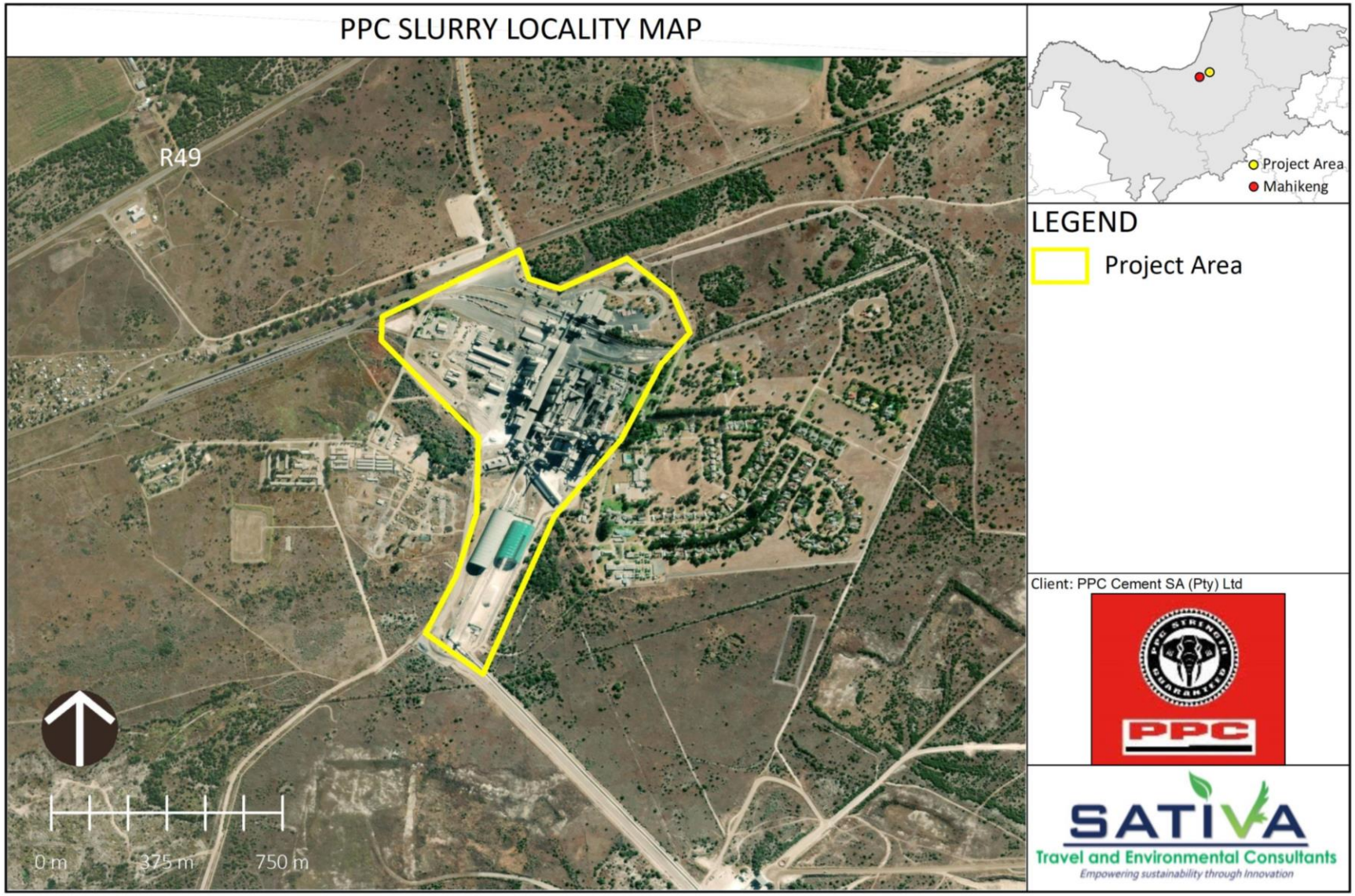

Figure 1: Locality Map for PPC Slurry

4.3 SITE ACCESS

The site will be accessed from the R49 along the northern boundary of the property. Within the site itself, existing internal access roads will be utilised to facilitate the movement of machinery, trucks and vehicles needed for the decommissioning activities.

4.4 CURRENT STATUS QUO OF THE SITE

The site is currently used for the continued operation of the PPC Slurry Plant.

4.5 PROJECT DESCRIPTION

The PPC Slurry Plant has been in operation for several years and a lot of equipment has become redundant as technology and commercial operations progress. Over the years, the redundant equipment has been stripped for spares where possible. The redundant equipment occupies a lot of space and as such the plan is to officially decommission this infrastructure in order to allow space for potential future projects, and further serve to increase PPC's storage capacity over and above the safety risk the redundant equipment poses. The planned decommissioning activities will be focused on the specific areas/equipment that are no longer in use / planned to be in use. These includes SK7 with associated infrastructure. Kindly refer to the list below for a brief summary of the key equipment planned to be decommissioned:

- Kiln 7
    - Refractory materials including kiln, cooler tubes and smoke chamber;
    - Drive housing;
    - Cooler tubes;
    - Dust bin;
    - Drive housing floor grid;
    - Walkways;
    - Feed-end substation concrete;
    - Feed-end substation brickwork;
    - Kiln Drive substation concrete;
    - Kiln Drive substation brickwork;
- Kiln 7 Piers 1 to 4 (supporting platforms)
    - All Concrete piers;
    - Access platforms, stairs and railings;
    - Riding ring at pier 1;
    - Riding ring at pier 2;
    - Riding ring at pier 3;
    - Riding ring at pier 4;

- Filter (Electrofilter)
    - Filter with internals and support structure;
    - ID Fan housing;

  - Ducting from smoke chamber up to Electrofilter and up to ID Fan including support and drive housing;
  - Elevator tower;
  - Concrete silo;
- Stack
  - Concrete;
  - Refractory;
  - Stairway and platforms;
  - Duct from stack to Electrofilter including supports.

The infrastructure above are all younger than 60 years, and therefore a heritage permit is not applicable to the site.

Decommissioning activities planned for these areas will include stripping off all identified plant mechanical components, the removal of electrical cables, along with the removal of auxiliary equipment not in use.

Activity specific method statements have been acquired for the various components planned to be decommissioned on site. Kindly refer to the table below which provides a summary of the planned activities and methods forming part of the demolition process.

Table 5: Summary of activity specific method statements

Planned Activity	Method Statement Summary
Mechanical demolition for concrete structures	• Risk assessments and demarcation will be done prior to commencement of tasks; • All concrete structures will be demolished using excavators fitted with hydraulic hammers; • Concrete structures will be demolished in a controlled demolition manner; • Areas within a safe radius from demolition/breaking area will be determined by the size and in which the structure of concrete plinth and columns are situated; • A safe distance is 25m from the area where excavator is working; • Noise levels on a 21 ton excavator with hammer is <85 DB within a radius of 15m; and • Noise levels on a 30 ton excavator with hammer is <102 DB within a radius of 15m.

Mechanical demolition for steel structures	• Risk assessments and demarcation will be done prior to commencement of tasks; • Controlled access to all areas; • All the steel demolition on structures will be done by using controlled demolition methods; • Work will be carried out by qualified and experienced demolition workforce; • Structures will be demolished in a mechanically controlled manner. Making use of gas cutting methods and excavators fitted with demolition attachments; • All the bricks on the kiln will be removed with Brock machines prior to starting of demolition. Noise level on Brock machines is 105 DB; • Demolition on the kiln will be done using cranes and qualified riggers, as well as making use of gas cutting methods; and • Noise level on the demolition of the kiln shell will not exceed 85 DB

Decommissioning activities are planned to be undertaken between 07:00 and 17:00 daily, over a period of approximately 2 months starting in late 2021.

All general waste generated during the demolition activities, will be dispose of at the municipal waste disposal site (Mahikeng). No concrete and building rubble will be removed from the site. It will be used for rehabilitation purposes within the Slurry quarry sites. The scrap steel will be recycled by the Treppo Group (Pty) Ltd located in Johannesburg.

In calculating the possible number of truck trips associated with the removal of steel from the site, the estimated volume of these materials are considered in relation to the removal truck loading capacity. Approximately 2,000 tonnes of **steel** scrap is planned to be generated, resulting in a total of between 1-2 trips per day over the 2 month period (using 20 ton or 30 ton tipper trucks). Furthermore, a registered oil recycling company is planned to come to site to collect the oil and fuel from the machinery, estimated at $7m^3$ gearbox oil and fluids to be removed.

Figure 2: Slurry Kiln 7

Figure 3: Example of Associated Infrastructure (Electrofilter)

Figure 4: SK7 stack

4.6 WATER & ELECTRICITY DEMAND AND SUPPLY

Given that the PPC Slurry Plant is existing and connected to the necessary water and electricity networks, water will be supplied from the Local Municipality and electricity by Eskom (where needed).

4.7 EMPLOYMENT OPPORTUNITIES

It is important to note that no new employment will take place with the planned decommissioning activities. Rather, site staff contractors will be used to fulfill the necessary tasks. Money generated from scrap metal recycling will be reallocated internally to the running of the PPC Plant.

4.8 NEED AND DESIRIBILITY

The need and desirability for the project is rooted in the high costs of maintaining the structural integrity of the old infrastructure associated with the kiln, the fact that it will not be financially feasible to maintain the old infrastructure and in result pose a major safety risk. In return, the scrap metal that will be generated by the decommissioning of the kiln and associated infrastructure, will have an economic value associated with it and will be sold with funds raised being absorbed into the company aiding to the unprecedented circumstances the business is facing during the global COVID-19 pandemic.

5 FEASIBLE AND REASONABLE ALTERNATIVES

The assessment of alternatives is an objective of the EIA Regulations of 2014 as amended. The Integrated Environmental Management (IEM) procedure requires that an environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, the NWDEDECT requires that a number of possible proposals or alternatives for accomplishing the same objectives should be considered. To ensure that the proposed development enables sustainable development, feasible alternatives must be explored.

In the case of the proposed development, possible alternatives were however not possible as the proposed decommissioning activities will take place on the existing footprint of the structures, with standard best practice methods to be implemented. Furthermore, the type of activity, layout and technology aspects of the planned decommissioning activities remain fixed.

5.1 LOCATION ALTERNATIVES

Given that the planned decommissioning activities are planned on a specific location where the SK7 with associated infrastructure are located, no further location alternatives can be considered.

5.2 ACTIVITY ALTERNATIVES

The project is for the proposed decommissioning of the redundant equipment and associated infrastructure at PPC Slurry. Therefore, no further activity alternatives can be considered.

5.3 DESIGN OR LAYOUT ALTERNATIVES

Given that the planned decommissioning activities are planned on a specific location, for infrastructure already in place, no design or layout alternatives can apply.

5.4 TECHNOLOGY ALTERNATIVES

Due to the mechanical nature of the proposed decommissioning activities planned at the site, only mechanical demolition will be necessary for the planned decommissioning activities.

5.5 OPERATIONAL ALTERNATIVES

There are no operational alternatives considered for this project as it is focused on decommissioning.

5.6 NO-GO ALTERNATIVE

The no-go option entails that the PPC Slurry site remains in its current state. If the proposed decommissioning activities would not continue and the no-go option is pursued it will imply that the already developed site with redundant equipment no longer in use will not be broken down and stripped. Leaving the equipment on site as is will continue to pose a major safety hazard and as such restriction to the Plant will need to be imposed. Furthermore, it will require PPC to constantly maintain the old infrastructure which is not economically feasible. PPC will not be able to convert the space used up by the equipment for potential storage areas, and they will also not be able to recycle the scrap metal and reallocate the money to the running of the PPC Plants.

Due to the fact that the proposed decommissioning activities are planned to take place within an existing developed footprint, will address the current safety hazard that the old buildings and equipment pose, and ultimately aid in PPCs longevity, it is not recommended that the No-Go option be followed.

6 LEGISLATIONS AND GUIDELINES

All the applicable environmental standards contained within the environmental legislation will be adhered to. Below are applicable legislations and guidelines for the proposed development and have been identified as relevant:

The Constitution of South Africa, 1996 (Act No.108 of 1996), as amended.

The Constitution of the Republic of South Africa[1] provides that, everyone has a right to an environment that is not harmful to their health or well-being. It further provides that, the environment should be protected for future generations through the implementation of the reasonable legislative and other measures that prevent pollution and ecological degradation.

National Environmental Management Act, 1998 (Act No.107 of 1998), as amended

The National Environmental Management Act aims to improve the quality of environmental decision-making by setting out principles for environmental management that apply to all government departments and organizations that may affect the environment. The Integrated Environmental Management (IEM) principles also aim to ensure that environmental impacts are considered before actions are taken or implemented and to ensure that there are adequate opportunities for public participation in decisions that may affect the environment. NEMA also creates a framework for facilitating the role of civil society in environmental governance.

EIA Regulations

The NEMA EIA Regulations (2014), were promulgated and came into effect on 04 December 2014. The Amendments to the EIA Regulations, 2014, published in Government Notice R326 in Government Gazette No. 40772 came into effect on 7 April 2017. These Regulations regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts, and for matters pertaining thereto.

[1] The Constitution of the Republic of South Africa, 1996 (Act 108 of 1996).
Section 24 – Bill of Rights

6.1 THE BASIC ASSESSMENT PROCESS

The Basic Assessment (BA) process is an effective environmental planning tool. It identifies the environmental impacts of a proposed project and assists in ensuring that a project will be environmentally acceptable and integrated into the surrounding environment in a sustainable way.

The BA process for this project complies with the requirements of the National Environmental Management Act, 1998 (Act 107 of 1998) [NEMA] and the NEMA EIA Regulations, 2014 as amended in 2017. The guiding principles of a BA Process are listed below:

- *Participation*: Appropriate and timely access to the process for all interested parties;
- *Transparency*: All assessment decisions and their basis should be open and accessible;
- *Certainty*: The process and timing of the assessment should be agreed in advance and followed by all participants;
- *Accountability*: The decision-makers are responsible to all parties for their action and decisions under the assessment process;
- *Credibility*: Assessment is undertaken with professionalism and objectivity;
- *Cost-effectiveness*: The assessment process and its outcomes will ensure environmental protection at the least cost to the society;
- *Flexibility*: The assessment process should be able to adapt to deal efficiently with any proposal and decision-making situation that may arise; and
- *Practicality*: The information and outputs provided by the assessment process are readily usable in decision-making and planning.

A BA process is considered as a management tool for collecting and analysing information on the environmental effects that may arise from the implementation of a project. As such, it is used to:

- Identify potential environmental impacts;
- Examine the significance of environmental implications;
- Assess whether impacts can be mitigated;
- Recommend preventive and corrective mitigating measures;
- Inform decision makers and concerned parties about the environmental implications; and
- Advise whether development should go ahead.

The Public Participation Process (PPP) forms an integral part of the BA Process and is discussed in greater detail below.

Figure 5 below illustrates the Basic Assessment process being followed.

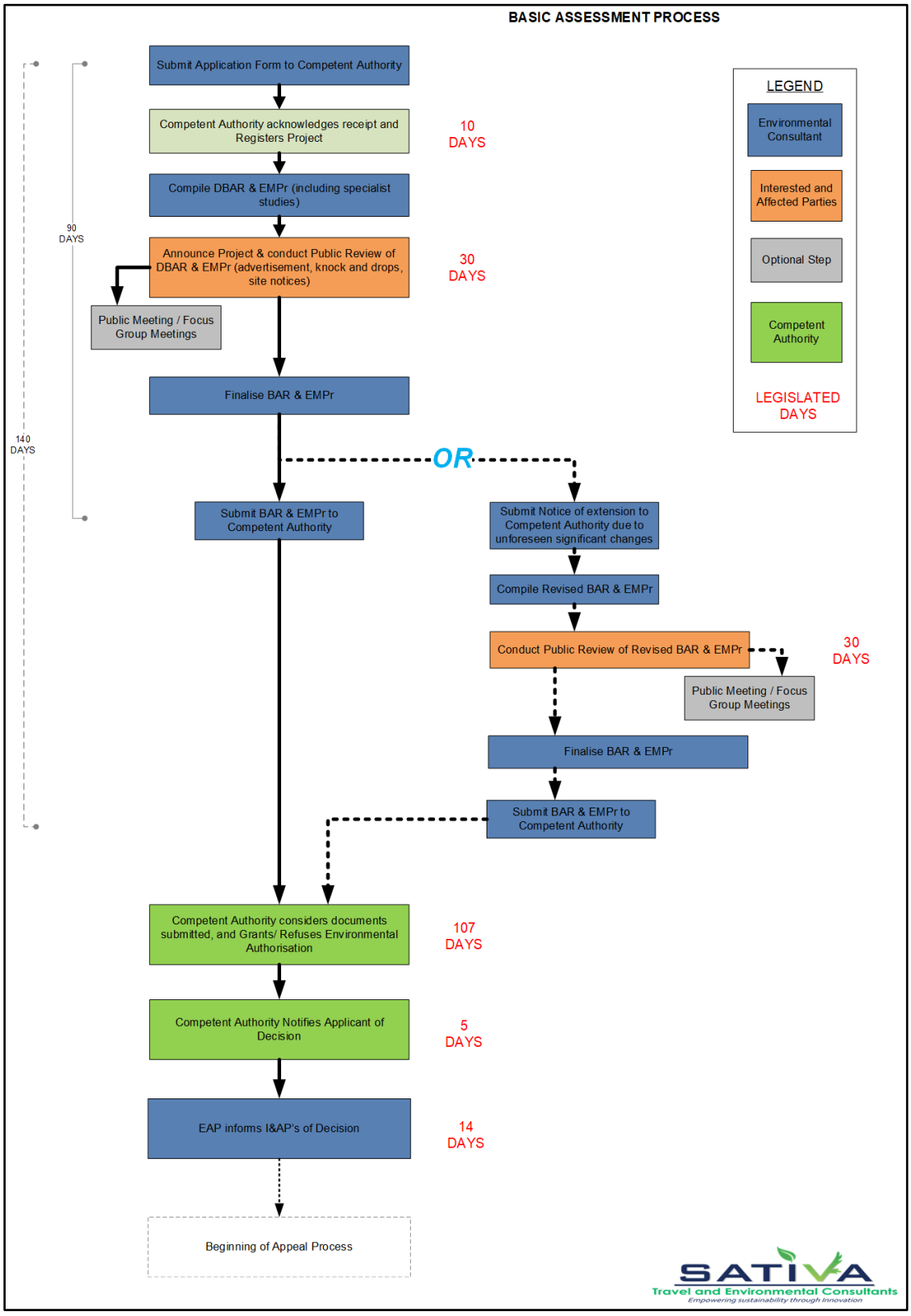

Figure 5: Basic Assessment Process Flow

6.1.1 Application for Authorisation

The Environmental Authorisation (EA) application form has been submitted to the NWDEDECT on Thursday 22 April 2021 and acknowledged on 17 June 2021.

6.1.2 Information Gathering

At the inception of the BA process available information regarding the receiving environment was obtained from reliable sources, and previous documented studies in the area.

6.1.3 Specialist Studies

Due to the nature of the development and its footprint being limited to the existing developed PPC Slurry site, no studies relating to the biodiversity will be required.

However, the planned mechanical demolition activities planned may pose some air quality impacts. As such, an Air Quality Screening was undertaken to inform the findings of this assessment.

6.1.4 Public Participation Process

The principles of NEMA govern many aspects of the BA process, including consultation with I&APs. These principles include the provision of sufficient and transparent information flow to I&APs on an ongoing basis, to allow them to comment; and ensuring the participation of historically disadvantaged individuals, including women, the disabled and the youth throughout the process.

The primary objectives of the public participation process are to:

- Inform and notify potentially Interested and Affected Parties (I&APs) of the proposed application (explain steps that were taken to achieve this);
- Initiate or promote meaningful and timeous participation of I&APs by providing proof that notice boards, advertisements and notices notifying potentially interested and affected parties of the proposed application have been displayed, placed or given;
- Maintain a list of all persons, organisation and organs of state that were registered as interested and affected parties in relation to the application;
- Identify issues and concerns of key stakeholders and I&APs with regards to the application for the proposed project;
- Provide a summary of the issues raised by interested and affected parties, the date of receipt of and the response of the EAP to those issues; and
- Provide responses to I &AP's queries.

6.1.4.1 Identification of Interested and Affected Parties and Database management

I&APs representing the following sectors of society have been identified (see **Appendix D** of the BAR for a preliminary I&AP database):

- Provincial Authorities;
- Local Authorities;
- Ward Councillors; and
- Adjacent Landowners.

The I&AP database will be updated throughout the BA process and new participants register on the project. All I&APs who register will be included within this database and included in project related correspondence going forward.

6.1.4.2 Public Announcement of the Project

Interested and Affected Parties (I&APs) have been informed of the project and requested to register and submit their comments to by means of the following (see **Appendix D** for public announcement documentation):

- Publication of media advertisement in the Mafikeng Mail on 23 April 2021.
- On-site notices placed from Wednesday, 21 April 2021, detailing the proposed development, the BA process and an invitation to register and comment. Notices were placed at strategic places on site and in the vicinity of the site (along the road, at intersections, etc.) as well as at high frequented places within Plant surrounds; and
- Distribution of letters by email to I&APs and telephonic calls where required.

6.1.4.3 Draft Basic Assessment Report (DBAR) for Public Review

A period of 30 calendar days (from **Friday, 23 April 2021 to Tuesday, 25 May 2021**) was allowed for public review and commenting of the Draft BAR. The availability of the Draft BAR was announced by means of public notice (adverts and site notices) and personal letters to all identified stakeholders on the distribution list. Refer to the I&AP notification letters in **Appendix D**. The DBAR was placed on the STEC website and made available electronically upon request.

6.1.4.4 Final Basic Assessment Report

All comments made on the Draft BAR during public review have been captured and adequately responded to in the Comments and Response Report (see **Appendix D**). Once the BAR has been finalised, it will be submitted to the NWDEDECT for decision-making.

6.1.5 Environmental Management Programme

An Environmental Management Programme (EMPr) will be based on the findings and recommendations set out in the BAR. The EMPr consists of a set of practical and actionable mitigation, monitoring and institutional measures to be taken into account during construction and operation of the development. The aim is to

eliminate adverse environmental and social impacts, offset them, or reduce them to acceptable levels. These plans will include:

- The standards and guidelines that must be achieved in terms of environmental legislation,
- Mitigation measures and environmental specifications which must be implemented at 'ground level' (i.e. during decommissioning),
- Provide guidance through method statements to achieve the environmental specifications,
- Define corrective action that must be taken in the event of non-compliance with the specifications of the EMPr,
- Prevent long-term or permanent environmental degradation.

The EMPr is attached as **Appendix F**.

National Water Act, 1998 (Act No.36 of 1998)

In terms of chapter 3, water resources are to be protected, used, developed, conserved, managed and controlled. This Act recognizes that water is a scarce resource; it is a natural resource that belongs to all of South Africa's people. The National Department of Water and Sanitation is responsible for the nation's water resource and also the Minister of Department of Water and Sanitation ensures that the water resource is "protected, used, developed, conserved, managed and controlled" through the implementation of this Act (National Water Act 36 of 1998).

It should be noted that the proposed decommissioning activities are not planned to impact on any receiving water resources.

National Environmental Management: Air Quality Act, 2004 (Act No.39 of 2004)

The main objective of the National Environmental Management Air Quality Act (NEMAQA) is the protection of the environment and human health in a sustainable (economic, social and ecological) development framework, through reasonable measures of air pollution control.

Refer to Appendix E for the Air Quality Screening report

Occupational Health and Safety Act, 1993 (Act No.85 of 1993)

To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

All permits required in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended must be obtained from the relevant authority prior to decommissioning.

Hazardous Substance Act (No15 of 1973)

Provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances.

National Environmental Management: Waste Act, 2008 (Act No.59 of 2008) (NEM:WA)

The NEM:WA provides reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. One of its main objectives is to protect health, wellbeing and the environment by providing reasonable measures for securing ecologically sustainable development while promoting justifiable economic and social development.

National Heritage Resource Act (No 25 of 1999) and Regulations

No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site. No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. A grave is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

This EMPr process also takes consideration the following legislation

- South African National Standard SANS 10103:2008 (The Measurement and Rating of Environmental Noise with Respect to Annoyance and Speech Communication).
- National Noise Control Regulations (1998).

7 RECIEVING ENVIRONMENT & SPECIALIST FINDINGS

7.1 CLIMATE AND RAINFALL

The North West Province is generally drier and hotter than the rest of the Highveld which lies further east. This is due to the rainfall gradient which increases from west to east across the interior of South Africa. The annual average temperature for period between 2017 and 2020 was 19.8°C. Whilst the minimum and maximum recorded temperatures between 2017 and 2020 were -2.97°C and 39.15°C respectively.

Average total measured annual rainfall is 129.68 mm for the period 2017 – 2020 according to the Ngaka Modiri Molema District Municipality, Mafikeng Air Quality Monitoring station.

7.2 TOPOGRAPHY

The topography of the site is generally flat as it is an existing developed industrial site.

7.3 LAND USE

The land use for the site is currently zoned for industrial purposes.

7.4 BIODIVERSITY BACKGROUND

Due to the built-up nature of the study area and it being located within an industrial area, the site itself doesn't constitute any sensitive natural vegetation requiring preservation. The proposed decommissioning activities will also not affect any identified watercourse resources as all the activities will take place within the existing site boundary.

7.5 SOCIO-ECONOMIC ENVIRONMENT

The Mahikeng Local Municipality has the highest unemployment rate compared with other municipalities within the Ngaka Modiri Molema District Municipality. The major issues that have contributed to high unemployment and poverty in the area include persistent low economic growth, retrenchments from mining due to decline in the mining sector, and insufficient diversification of the economy. Approximately 93 500 people have been indicated as the economically active population, with an estimated 46 052 of the total population being unemployed (MLM, 2012).

The municipality is a predominantly rural municipality, and its rural economy is unable to provide individuals with remunerative jobs or self-employment opportunities. An estimated amount of about 13 755 people in the municipality had no income in 2011. This amounts to 4.72%. Taking the 1.16% annual growth to date this therefore means that to date this figure has risen to 14 405. In general terms, the majority of households in the municipality earns less than the poverty line (about R1, 600 per household per month) and can be

considered poor. Those classified as economically active are employed in the services sector. This sector is dominated by the services in terms of the various departments that render services such as health, justice, local government, education, SAPS (MLM, 2017-2018).

8 SPECIALIST FINDINGS

The methodologies for the specialist study undertaken is presented in the comprehensive specialist report. The results of the study is presented, and the implications considered, along with presentation of the mitigation measures proposed (where required and viable). For the purpose of this assessment, only an Air Quality Screening was undertaken.

8.1 AIR QUALITY SCREENING

The proposed decommissioning will involve the mechanical removal of kiln 7 along with supporting steel and concrete structures.

The entire decommissioning exercise will be undertaken over a duration of 2 months, and will include:

- Removal of electrical works, switchgear and circuitry;
- Removal of steel piping and ducting;
- Removal of steel structures;
- Demolition and removal of concrete structures;
- Disposal of the above via recyclers and reclaimers, and landfill where recycling is not feasible.

Concrete structures will be dismantled and demolished mechanically using jack hammers and wrecking balls. The concrete rubble generated will be loaded onto trucks and re-used for rehabilitation purposes within the Slurry quarries.

No potentially significant point sources were identified for the proposed activities. The majority of sources of emissions to atmosphere consist of materials handling for removal of rubble from the site. These sources are not expected to have a significant contribution to the ambient air quality within the area.

Predicted ambient concentrations of particulate matter (PM_{10} and $PM_{2.5}$) due to emissions from the proposed activities are well within the 24-hour NAAQS for PM_{10} and $PM_{2.5}$ of 75 µg/m³ and 40 µg/m³, respectively. The predicted ambient concentrations are well within the annual NAAQS for PM_{10} and $PM_{2.5}$ of 40 µg/m³ and 20 µg/m³, respectively. Figure 6 to Figure 9 below represent the maximum predicted 24-hour concentration for PM_{10} and $PM_{2.5}$.

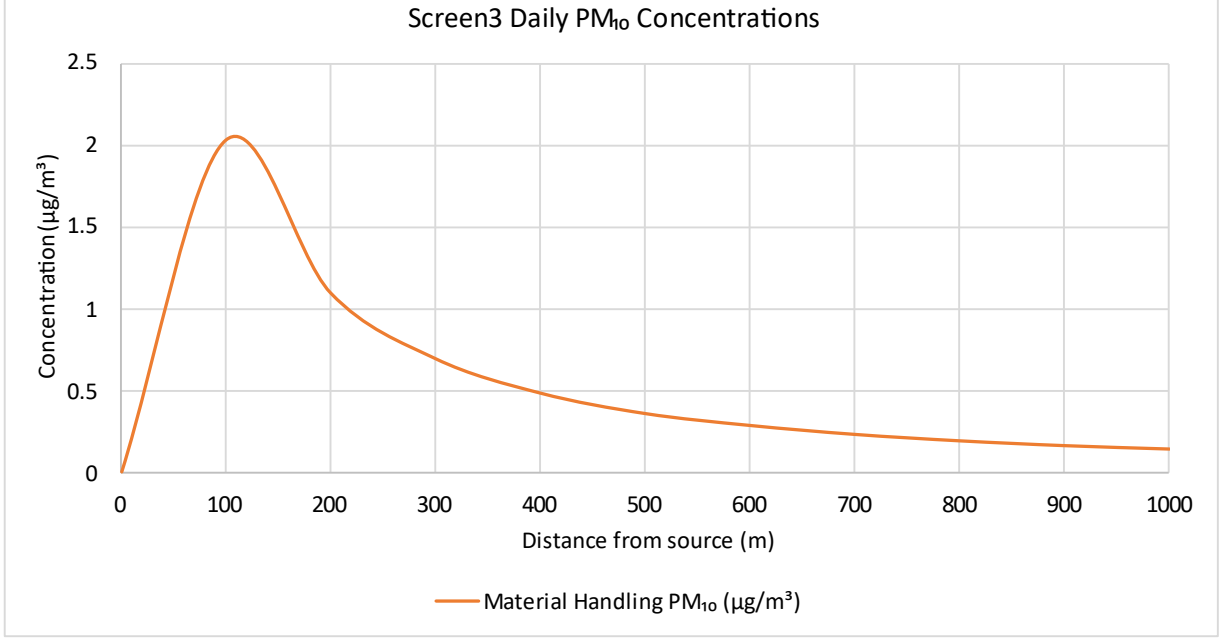

Figure 6: Predicted PM_{10} 24-Hour modelled ambient concentration.

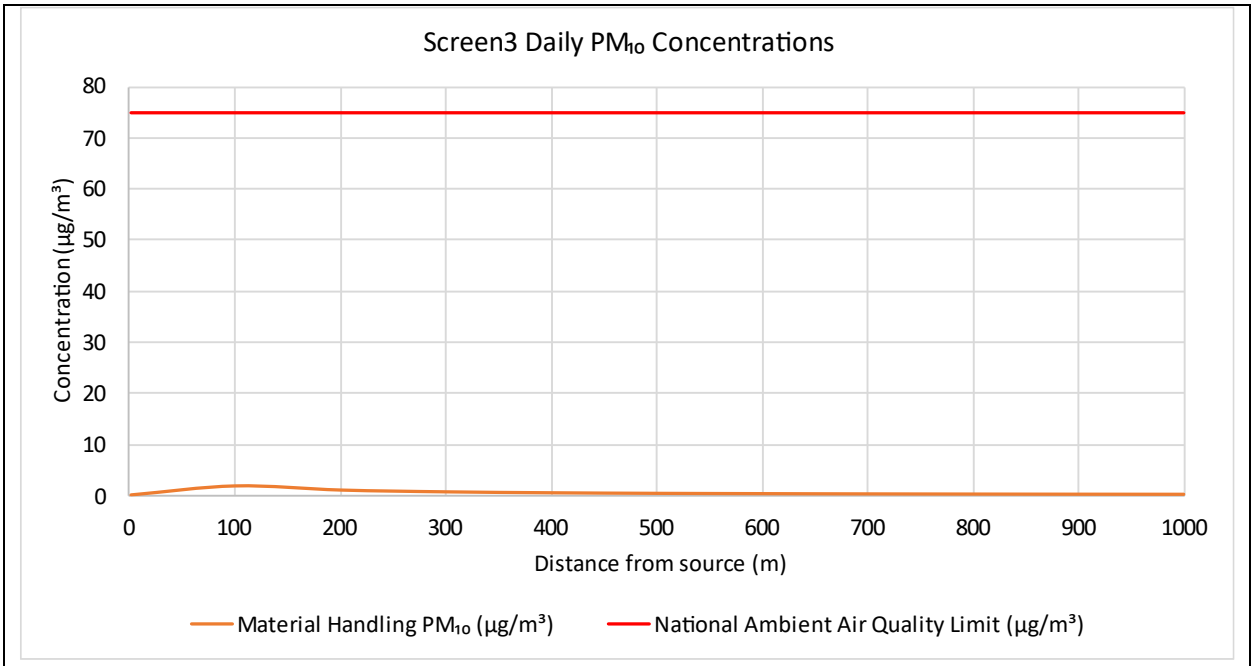

Figure 7: Cumulative Predicted PM10 24-Hour modelled ambient concentration.

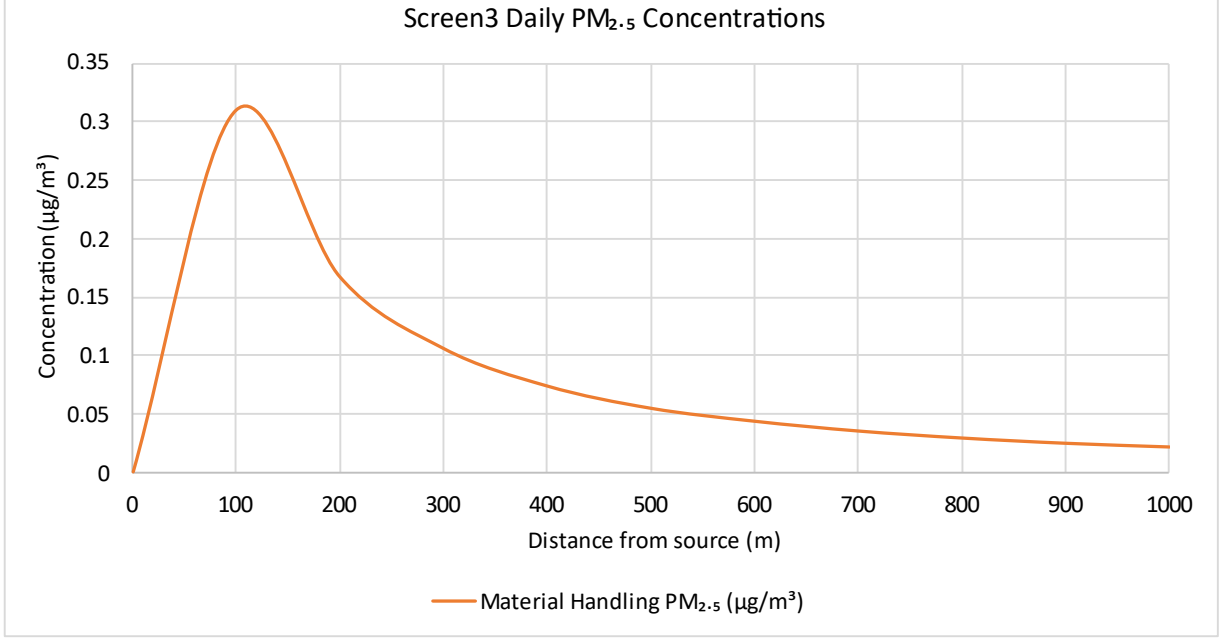

Figure 8: Predicted PM2.5 24-Hour modelled ambient concentration.

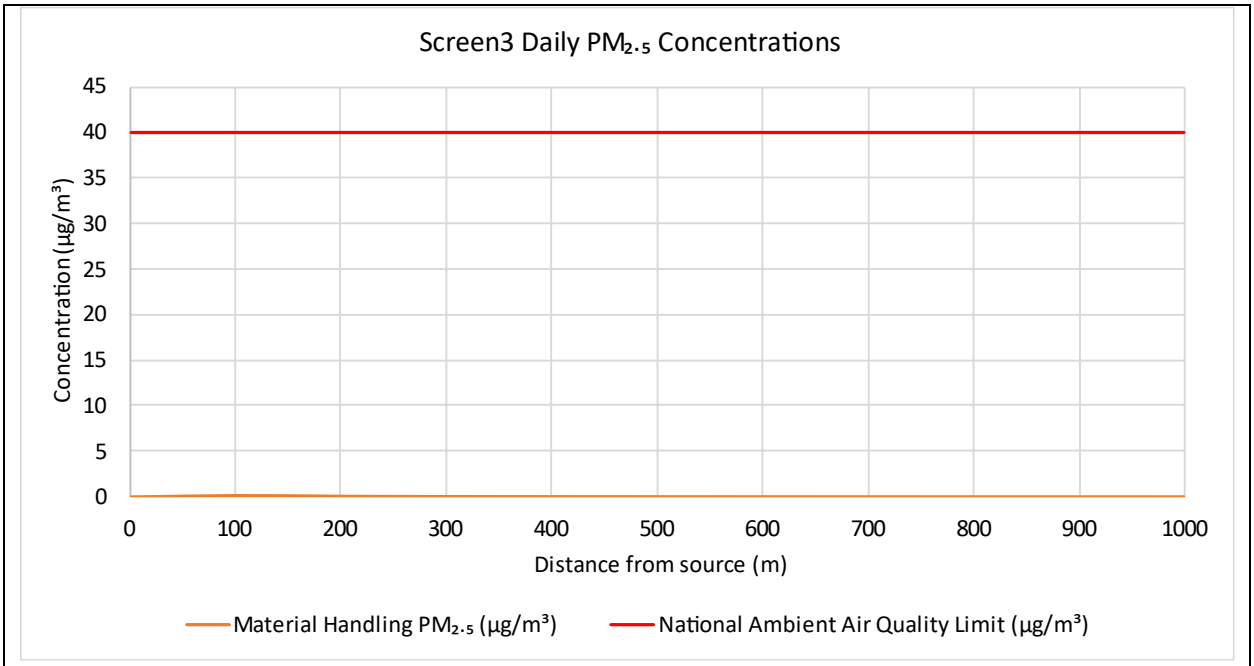

Figure 9: Cumulative Predicted PM2.5 24-Hour modelled ambient concentration.

Notably no potentially significant emissions of other pollutants which may pose a health or environmental risk are anticipated.

9 IMPACT ASSESSMENT METHODOLOGY

An environmental impact is the change to the environment, whether desirable or undesirable, that will result from the effect of an activity. An impact may be the direct or indirect consequence of an activity. A description of potential impacts or consequence of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space.

9.1 IMPACT ASSESSMENT METHODOLOGY

The section below is the method used for determining the significance of impacts. Each of the impacts were listed, limited to the decommissioning phase as that is the focus of this project. A description of the findings and potential implications of such findings on the impact of the proposed activity on the environment was provided. Impacts and risks were identified, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts - (a) can be reversed; (b) may cause irreplaceable loss of resources; and (c) can be avoided, managed or mitigated.

The specialist studies are synthesised and integrated into the overall impact assessment and recommendations for mitigation are included in the EMPr (full reports are included as Appendices). The contents of all specialist reports include information as prescribed in Regulation 32(3) of the EIA Regulations, 2014 (as amended) and provide preference ranking of the site.

In addition, the following was identified:

- positive and negative impacts that the proposed activity will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;
- the possible mitigation measures that could be applied and level of residual risk; and

The following methodology was applied to the prediction and assessment of impacts/risks. Potential impacts were rated in terms of the direct, indirect and cumulative:

- Direct impacts are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

- Indirect impacts of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.
- Cumulative impacts are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.
- Nature of impact - this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

Table 6: Potential Intensity/Severity Rating

Potential Intensity Description (negative)	Intensity	Score
Change is slight, often not noticeable, natural functioning of environment not affected.	Negligible	1
Natural functioning of environment is minimally affected. Natural, cultural and social functions and processes can be reversed to their original state.	Low	2
Environment remarkably altered, still functions, if in modified way. Negative impacts cannot be fully reversed.	Medium	3
Cultural and social functions and processes disturbed – potentially ceasing to function temporarily.	High	4
Natural, cultural and social functions and processes permanently cease, and valued, important, sensitive or vulnerable systems or communities are substantially affected. Negative impacts cannot be reversed.	Very high	5

Note that the concept of "irreplaceable loss of a resource" is to be taken into account in the Potential Intensity score of an impact

- Irreplaceability of resource loss caused by impacts –
    - High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e. this is the least favourable assessment for the environment. For example, if the project will destroy unique wetland systems, these may be irreplaceable);
    - Moderate irreplaceability of resources;
    - Low irreplaceability of resources; or
    - Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e. this is the most favourable assessment for the environment).
- Spatial extent – The size of the area that will be affected by the risk/impact:

Extent Description	Score
Site specific (Impacted area is only at the site – the actual extent of the activity).	1

Local (iimpacted area is limited to the site and its immediate surrounding area).	2
Regional (Impacted area extends to the surrounding area, the immediate and the neighboring properties).	3
Provincial (Impact considered of provincial importance).	4
International/Global (e.g. Greenhouse Gas emissions or migrant birds).	5

- Duration – The timeframe during which the risk/impact will be experienced:
  The concept of "reversibility" is reflected in the duration scoring. I.e. the longer the impact endures the less likely it will be reversible.

Duration Description	Score
Temporary (less than 3 year) or duration of the construction period. This impact is fully reversible. E.g. the construction noise temporary impact that is highly reversible as it will stop at the end of the construction period	1
Medium term (3 to 10 years). The impact is reversible with the implementation of appropriate mitigation and management actions.	2
Long term (> 10 years but where the impact will cease after the operational life of the activity). The impact is reversible with the implementation of appropriate mitigation and management actions. E.g. the noise impact caused by the desalination plant is a long term impact but can be considered to be highly reversible at the end of the project life, when the project is decommissioned	3
Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient). This impact is irreversible. E.g. The loss of a palaeontological resource on site caused by construction activities is permanent and would be irreversible.	4
Permanent – no mitigation measures of natural process will reduce impact after implementation – impact will remain after operational life of project.	5

Reversibility of impacts -

- High reversibility of impacts (impact is highly reversible at end of project life, i.e. this is the most favorable assessment for the environment. For example, the nuisance factor caused by noise impacts associated with the operational phase of an exporting terminal can be considered to be highly reversible at the end of the project life);
- Moderate reversibility of impacts;
- Low reversibility of impacts; or

- Impacts are non-reversible (impact is permanent, i.e. this is the least favorable assessment for the environment. The impact is permanent. For example, the loss of a paleontological resource on the site caused by building foundations could be non-reversible).

Using the criteria above, the impacts were further be assessed in terms of the following:

- Probability – The probability of the impact/risk occurring:

Probability Description	Score
Improbable (little or no chance of occurring <10%)	1
Low Probability (10 - 25% chance of occurring)	2
Probable (25 - 50% chance of occurring)	3
Highly probable (50 – 90% chance of occurring)	4
Definite (>90% chance of occurring).	5

- Magnitude–The anticipated severity of the impact (Intensity + Extent + Duration):
- Extreme (extreme alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they permanently cease);
- Severe (severe alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Substantial (substantial alteration of natural systems, patterns or processes, i.e. where environmental functions and processes are altered such that they temporarily or permanently cease);
- Moderate (notable alteration of natural systems, patterns or processes, i.e. where the environment continues to function but in a modified manner); or
- Slight (negligible alteration of natural systems, patterns or processes, i.e. where no natural systems/environmental functions, patterns, or processes are affected).
- Significance – Will the impact cause a notable alteration of the environment? To determine the significance of an identified impact/risk, the consequence is multiplied by probability.

Impact Magnitude = Potential Intensity + duration + extent

Significance rating = Impact magnitude * Probability

Table 7: Guide to assessing risk/impact significance as a result of consequence and probability

Scoring	Significance rating	Description
81-100	Very High	The project cannot be authorised unless major changes to the design are carried out to reduce the significance rating.

60--80	High	The impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making.
45-59	Medium high	The impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated.
30-44	Medium Low	The impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making.
15-29	Low	The impact may result in very minor alterations of the environment and can be avoided through the implementation of mitigation measures.
1-14	Very Low	No action required.

- Significance was rated as follows (based on Table above)
  - Very low (the risk/impact may result in very minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
  - Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
  - Medium (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated); or
  - High (the risk/impacts will result in a considerable alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making).
  - Very high (the risk/impacts will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making
    (i.e. the project cannot be authorized unless major changes to the engineering design are carried out to reduce the significance rating).

Impacts have been described both before and after the implementation of the proposed mitigation and management measures. The scenario “without mitigation” considers all management actions already proposed by the proponent as part of the project description. “With mitigation” assesses the significance rating of the potential impact, taking into account any additional management actions recommended by the specialist.

Linked to the above, for each impact assessment, mitigation measures are generally listed under the following three categories (as applicable):

- Mitigation measures inherent to the project design (i.e. mitigation/management actions that the proponent had planned to implement as part of the project description);
- Key management actions proposed by specialist (pertinent measures that will be written into, and enforced through the EMPr for implementation to ensure that the significance of the associated impact is acceptable); and
- Additional management actions proposed by the specialist (management actions to be considered by proponent and authority).

The impact assessment has attempted to quantify the magnitude of potential impacts (direct and cumulative effects) and outline the rationale used. Where appropriate, national standards are used as a measure of the level of impact.

The above assessment must be summarised in an impact assessment Table as below.
Given the limited alternatives available one impact assessment has been done for the preferred decommissioning activity.

10 ASSESSMENT OF POTENTIAL IMPACTS AND MITIGATION

This Chapter identifies and evaluates the actual and potential environmental consequences of the proposed activity. Furthermore, the potential for mitigation of negative impacts and enhancement of positive impacts are described. The below impacts on the biophysical, socio-economic and cultural/historical environment have been assessed based on the methodology provided in Chapter 9. Specialist study methodologies are provided in each study as attached in the Appendices. For each impact assessed, mitigation measures have been proposed to reduce or avoid negative impacts and enhance positive impacts. These mitigations were also incorporated in the EMPr to ensure that they are implemented during the various phases of the proposed project.

10.1 SUMMARY OF IMPACTS TO ASSESSED

The following impacts were identified as potentially significant:

Aspect	Potential Impacts
	Decommissioning Phase
Air Emissions	• Generation of dust from decommissioning activities, vehicle movement and mechanical demolition of the SK7 associated infrastructure . • Engine emissions from decommissioning vehicles and tools.
Noise	• Generation of noise from vehicles and machinery used to decommission SK7 and associated infrastructure.
Socio-Economic	• Money generated from scrap metal recycling will be reallocated internally to the running of the PPC Plant, which will ultimately help with avoiding job cuts and contract terminations during the low workload / demand experienced as a result of the COVID-19 pandemic.
Traffic Impacts	• Increase in traffic associated with vehicles and machinery used for decommissioning and transport of the concrete and steel to their respective disposal/recycling locations. • Accidents with pedestrians, animals and other drivers on the surrounding tarred access roads. • Change in quality of surface condition of the roads.

10.2 BIO-PHYSICAL AND SOCIO-ECONOMIC IMPACTS ASSESSMENT

10.2.1 Air Emission

Generally decommissioning activities generate dust. The emission of particulates into the atmosphere is through vehicle dust entrainment, demolition, excavation, ground levelling, etc. The main environmental problem with dust that is generated from these activities is that it settles on surrounding properties and land which is often more of a nuisance problem than a health issue. The dust is generally coarse, but may include fine respirable particles (PM10) and these are known to be a risk to human health.

Exhaust emissions from construction vehicles and equipment typically include particulates (including PM10), carbon monoxide (CO), nitrogen oxides (NO_X), and sulphur dioxide (SO_2). The decommissioning activities are typically short lived and the pollutants are released close to ground level with little or no buoyancy which limits their dispersion and the potential impacts to the site.

Table 8: Impact Significance of Air Emission

Theme	Air Quality
Phases	Decommissioning Phase
Nature and Status of Impact.	Generation of dust from decommissioning activities.
Extent	Local (2)
Duration	Short Term (1)
Intensity	Low-Medium (3)
Probability	Definite (5)
Confidence	High
Level of Significance before mitigation (Inherent risk)	(2+1+3)*5= 30
	Medium - Low (-)

Reversibility	High
Irreplaceability	Replaceable
Mitigation Measures	• Dust fallout monitoring should be conducted during the decommissioning activities to ensure that the cumulative impact of operating the plant and undertaking the decommissioning activities do not exceed the National Ambient Dust Regulations. • Any complaints from I&APs must be investigate against the dust fallout monitoring
Level of Significance with Mitigation (Residual risks)	**Low**

10.2.2 Noise Pollution

Activity which generates noise during the decommissioning activities may potentially result in an increase in ambient noise levels within the local area.

The impacts of the increase in noise will depend on the level of increase.

Table 9: Impact on Noise Pollution

Theme	Noise Pollution
Phases	Decommissioning Phase
Nature and Status of Impact.	Noise and vibration from construction traffic along main transport/access routes.
Extent	Site (1)
Duration	Short Term (1)
Intensity	Low (2)
Probability	Possible (4)
Confidence	High
Level of Significance before mitigation (Inherent risk)	(1+3+2)*4=24
	Low (-)
Reversibility	High
Irreplaceability	Low
Mitigation Measures	Decommissioning Phase
	• All decommissioning vehicles and equipment are to be kept in good repair to reduce excessive noise generation • Should I&APs complain about excessive noise, noise monitoring should take place to ensure that the decommissioning activities do not exceed the SANS limits for industrial sites.
Level of Significance with Mitigation (Residual risks)	**Low**

10.2.3 Social Baseline, Economy and Employment

The proposed decommissioning project will not result in any new employment opportunities. The money generated from scrap metal recycling will be reallocated internally to the running of the PPC Plant which will ultimately keep help avoid job cuts and contract terminations during the low workload. demand experienced as a result of the COVID-19 pandemic.

Therefore, even though the project will not directly result in additional socio-economic benefits, it will aid in retaining jobs, which sustain livelihoods of the employees / contractors currently in service is seen as a positive impact.

10.2.4 Traffic and Road Network

The proposed decommissioning activities will require trucks and heavy machinery to travel to and from the site, for the transport of such machinery, as well as transporting the concrete waste and scrap metal to their respective disposal locations. In calculating the possible number of truck trips associated with the removal of concrete and steel from the site, the estimated volume of these materials is considered in relation to the removal truck loading capacity. Approximately 2,000 tonnes of **steel** scrap is planned to be generated, resulting in a total of between 1-2 trips per day over the 2 month period (using 20 ton or 30 ton tipper trucks).

Table 10: Impact on Traffic and Road Network

Theme	Traffic and Road Network
Phases	Decommissioning Phase
Nature and Status of Impact.	• Increase in traffic. • Accidents with pedestrians, animals and other drivers on the surrounding tarred/gravel roads • Impact on air quality due to dust generation, noise and release of air pollutants from vehicles and construction equipment. • Change in quality of surface condition of the roads
Extent	Local (2)
Duration	Short-term (1)
Intensity	Low (1)
Probability	**Probable** (3)
Level of Significance before mitigation (Inherent risk)	(2+1+1)*3= 12
	Low (-)
Reversibility	Moderate
Irreplaceability	Low

Mitigation Measures	• Appropriate warning traffic signs, in accordance with the South African Road Traffic Signs Manual, should be erected to protect road users on the approaches to the sharp curves and the access road junction. Temporary signs should be erected on the approaches to the access road junction warning motorists of heavy vehicle traffic during the decommissioning activities being undertaken. • All vehicles and machinery must abide by the relevant speed limits of the roads that they travel on, at all times
Level of Significance with Mitigation (Residual risks)	**Low**

10.3 IMPACT STATEMENT

The proposed decommissioning of Slurry Kiln (SK) 7 with associated infrastructure at the existing PPC Slurry Plant situated near Mahikeng, was assessed via Basic Assessment (BA) process. The project is located within the existing PPC Slurry Plant boundary, with the decommissioning activities of the respective kiln and associated infrastructure to be undertaken on the existing Plant footprint of 55 ha of which the decommissioning infrastructure is <1ha.

The specialist findings shown in Section 8 above and the impact assessment shown in the Section 10, confirm that the impacts associated with the proposed decommissioning activities can be mitigated to acceptable levels, to allow the planned activities to proceed.

Table 11: Residual Risk Summary

Impact theme	Decommissioning Phase
Air Emissions	Low
Noise Pollution	Low
Social aspects	Positive
Traffic	Low

11 CONCLUSIONS AND RECOMMENDATIONS

As shown within the Basic Assessment Report, the proposed project will have minimal environmental impacts which should be manageable through good management practices and following all environmental recommendations made in the sections above and in the EMPr. Although all foreseeable actions and potential mitigations or management actions are contained in the EMPr, the document should be considered as a day-to-day management document which can be adjusted as and when required. Major changes should however be communicated to the authorities. The current EMPr thus sets out the environmental standards that are required to minimise the negative impacts and maximize the positive benefits of the local community. An EMPr is a "live document" and its continuous review and correct management will definitely result to the successful construction and operation of the proposed development.

Based on the impact assessment conducted, it is the EAP's opinion that the proposed development be authorised with the inclusion of the following conditions:

- The EMPr is a legally binding document and must be adhered too at all times.
- The monitoring of the decommissioning site must be carried out by the onsite Environmental Officer so as to ensure compliance to the Environmental Management Programme (EMPr).
- Dust fallout monitoring should be conducted during the decommissioning activities to ensure that the cumulative impact of operating the plant and undertaking the decommissioning activities do not exceed the National Ambient Dust Regulations.
- All mitigation measures listed in the BAR as well as the EMPr must be implemented and adhered to.
- All permits required in terms of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) as amended must be obtained from the relevant authority prior to decommissioning.

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12. REFERENCE

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APPENDICES