

Proposed Middelburg Dam Precinct Plan, Steve Tshwete Local Municipality, Mpumalanga Province

Draft Basic Assessment Report

4 August 2021

CORE Environmental Services

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Professional Registration -SACNASP: 300067/15 EAPASA: 2020/602 **Steve Tshwete Local Municipality** is proposing the development of the Middelburg Dam Precinct Plan which currently includes the following proposed land use activities:

- Lodges and/ or accommodation;
- Conferencing facilities;
- Caravan Park;
- Mini golf course and/or country estate.

This development will require the clearance of approximately 18.7 hectares of vegetation on a portion of portion 87 of the farm Rondebosch 403-JS and portion 65 of the farm Rondebosch 403-JS. In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before any clearance activities can take place for the proposed development.

Core Environmental Services was appointed to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

The establishment and operation of the Middelburg Dam Precinct Plan area are likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- Impact on biodiversity;
- Generation of dust;
- Impact on soil;
- Impact on water resources;
- Impact on heritage;
- Impact on sanitation and waste management;
- Socio-economic impact.

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
Establishment and Operational Impacts		
Biodiversity Impact	Medium	Low
Generation of dust	Low	Very Low
Erosion	Low	Very Low
Soil Pollution	Low	Very Low
Impact on water resources	Medium	Low
Impact on heritage	Low	Very Low
Impact on traffic	Low	Very Low

Job opportunities	Low (+)	High (+)
Health and Safety	Low	Very Low
Operational Phase Impacts		
Biodiversity Impact	Medium	Low
Loss of habitat for fauna	Low	Very Low
Erosion	Low	Very Low
Soil contamination	Low	Very Low
Impact on water resource	Medium	Low
Impact on Sanitation	Medium	Low
Impact on Waste Management	Medium	Low
Impact on infrastructure due to flood events	Low	Very Low
Socio-economic Impact	Low (+)	High (+)

The essence of all environmental assessment processes is aimed at ensuring informed decisionmaking and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of **medium to low significance** as the proposed project area has already been transformed and is currently utilised as a camping facility. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. It is recommended that pro-active measures are taken to minimise the spread of alien invasive vegetation. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 6**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

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ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
EA	Environmental Authorisation
GNR	General Notice Regulation
I&AP	Interested and Affected Party
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
PPP	Public Participation Process

1. OVERVIEW OF THE PROJECT

1.1 Introduction

Steve Tshwete Local Municipality is proposing to clear approximately 18.7 hectares of vegetation on portion 87 of the farm Rondebosch 403-JS and portion 65 of the farm Rondebosch 403-JS for the development of the Middelburg Dam Precinct Plan.

In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before any clearance activities can take place.

Core Environmental Services was appointed to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

1.2 Location

The proposed site is located on a portion of portion 87 of the farm Rondebosch 403-JS and a portion of portion 65 of the farm Rondebosch 403-JS, approximately 10km East of Middelburg, within the Steve Tshwete Local Municipality, Mpumalanga Province.

Coordinates of portion 87 of the farm Rondebosch 403-JS:

25° 46'17.45"S 29° 33'05.07"E

Surveyor General Code: T0JS0000000040300087

Coordinates of portion 65 of the farm Rondebosch 403-JS

25° 46'22.46"S 29° 32'56.50"E

Surveyor General Code: T0JS0000000040300065

Please refer to the locality map below, Figure 1 and 2.



FIGURE 1: LOCALITY MAP – PROPOSED MIDDELBURG DAM PRECINCT PLAN

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FIGURE 2: ZOOMED LOCALITY MAP PROPOSED STUDY AREA FOR MIDDELBURG DAM PRECINCT PLAN

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1.3 Details of the EAP

Ms. Anne-Mari White, is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Ms. White is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) as well as the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

1.4 Policy, Legal and Administrative Framework

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
The Constitution of South Africa, Act No. 108	Steve Tshwete Local Municipality will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented.
of 1996	As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR982 of 2014 (as amended in 2017).
National Biodiversity Act, 2004 (Act No. 10 of 2004)	The act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resource; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.
	functions of a South African National Biodivers Institute; and for matters connected therewith. The National Biodiversity Act, 2004, must therefor be considered prior to the clearance of vegetation

	to minimise the impact on the terrestrial biodiversity.
Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery.
	During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Heritage Resources Act, 1999 (Act No 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.
	According to the National Heritage Resources Act 25 of 1999, a Heritage Impact Assessment is required when more than 5000m ² are to be transformed. Accordingly, a Heritage Impact Assessment was conducted as part of the Environmental Assessment Process and the finding thereof are described in Section 4 and 7 respectively.
Steve Tshwete Local Municipality Integrated Development Plan (IDP) (2017 - 2022)	The primary objectives of the IDP are to foster economic growth that creates jobs and improve infrastructure within the province.
	Job opportunities will be created by the proposed tourism development which supports economic growth within the area.

1.5 National Environmental Management Act 107 of 1998

In accordance with the National Environmental Management Act 107, of 1998, the following listed activities will be triggered by the proposed development and will require approval prior to commencement:

GNR 983, Activity 27, 2014 (as amended in 2017):

The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for –

(i) The undertaking of a linear activity; or

Maintenance purposes undertaken in accordance with a maintenance management plan.

GNR 983, Activity 12, 2014 (as amended in 2017):

The development of infrastructure or structures with a physical footprint of 100 square meters or more;

Where such development occurs-

(a) within a watercourse

GNR 983, Activity 19, 2004 (as amended in 2017)

The infilling or depositing of any material of more than 10 cubic meters into, or the dredging excavation, removal or moving of soi, sand, shells, shell grit, pebbles of rock of more than 10 cubic meters from

(i) a watercourse

1.6 Description of the project

The following land use activities are proposed for the Middelburg Dam Precinct Plan and are subject to amendment as part of the refinement of the precinct plan layout:

- Lodge and/or accommodation
- Conferencing facilities
- Caravan Park
- Mini golf and/or country estate

Currently, the project area is utilised as a resort and subsequently a portion of the current camping facilities will remain.

1.7 Need and Desirability

The Mpumalanga Tourism Growth Strategy aims to achieve the following:

- Developing a diverse range of alternative tourism products to meet the requirements of different market segments; and
- Developing products that complement and do not compromise or threaten the natural resources on which the tourism developments rely.

The Steve Tshwete Local Municipality initiated the proposed project to attract tourists and generate additional income within the area. Tourism will have a positive impact on the economy of Middelburg and will allow many new job opportunities for the local community. Public and private employment is a major advantage of tourism activities. It leads to the generation of employment which is an important factor associated with the industry. Not only does tourism create jobs and business opportunities related to travel, but it also helps to diversify and stabilize the local economy. The creation of employment opportunities influences the migration patterns of the community in two main directions; It helps the area retain citizens who would migrate away, particularly unemployed, and underemployed youths in economically marginal areas.

Tourism encourages civic involvement and pride within a community as it encourages community beautification and revitalisation relating to the notion of community pride. Tourism has the power to enhance the environment and to provide funds for conservation.

This proposed development therefore has a three-fold impact on the community, namely economic, social, and environmental. The development of increased tourism activity has shown to deliver a variety of benefits to the local community.

2. PUBLIC PARTICIPATION PROCESS

The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g., directly affected landowners, national-, provincialand local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1**.

In effort to engage potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all registered I&APs, proof of which is attached in Annexure C.2;
- Placement of media advert in a local newspaper (Middelburg Observer) on 10 June 2021 (see **Annexure C.3**).

• Placing of a notice at the proposed site took place on 13 May 2021 (see **Annexure C.4**); September 2021

To date no comments have been received by I&AP's.

3. CONSIDERATION OF ALTERNATIVES

The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design the of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible, and sustainable operation of the proposed project.

3.1 Alternative Selection

3.1.1 Location alternatives

No other site alternative was considered for the development as the applicant, Steve Tshwete Local Municipality, has carefully selected the portion of the property proposed for the Middelburg Dam Precinct Plan. The selected property was the least sensitive in terms of ecology and the natural vegetation is largely displaced by lawns and current camping grounds as well as dwellings and infrastructure.

3.1.2 Layout alternatives

An Ecological and Heritage Impact Assessment was conducted to identify any ecological and heritage sensitivities within the proposed project areas. The specialist reports therefore informed sensitive areas to be excluded from the development.

The aspects considered during the specialist investigations included the following:

- Dwellings and Infrastructures;
- Natural vegetation
- Slope of the area; as well as
- Rocky areas within the project site •

The layout proposed as attached in Appendix A, is therefore the best layout alternative which will have the least impact on the environment.

3.1.3 No-Go alternative

The no-go alternative would be to not authorise the application for the clearance of vegetation for the proposed Middelburg Dam Precinct Plan. Should this alternative be favourable, the project area will not be cleared and used for development, however, no impact was identified to be so severe in order for the no-go alternative to be further investigated.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

4.1 Topography

The study area is located within the Mesic Highveld Grassland Bioregion. The topography of the proposed project area is approximately 1500 to 1750 meters above mean sea level. The vegetation is short dense grassland dominated by typical Highveld grasses, scattered rocky outcrops. Trees. Sandy soils are predominant; however, the area is mostly flat and fit for development.

4.2 Climate

Mpumalanga is a province where the climate varies due to its topography. The local area is characterized by moderate climatic conditions with a mean maximum temperature of 20°C during January and 10°C during June.

The site is situated in a medium-high summer rainfall area, with an annual rainfall average of 714mm. Winter rainfall is almost non-existent. Its lowest rainfall (6mm) is in June and highest (158mm) in January.

4.3 Ecology

The regional veld type is classified by Acocks (1953) as Bankenveld (A61) and as Moist Sandy Highveld Grassland (LR38) by Low & Rebelo (1998). Classified on a regional scale and according to a more detailed system, Mucina & Rutherford (2006), the site falls within the Rand Highveld Grassland (Gm11). This ecosystem is rated as Endangered due to the low percentage of conservation areas (1%) and the high percentage of transformation due to agriculture, mining, urban sprawl and roads infrastructure (Mucina & Rutherford, 2006).

The vegetation type is classified as the Rand Highveld Grassland. Rand Highveld Grassland occurs in Gauteng, North-West, Free State and Mpumalanga Provinces in areas between rocky ridges from Pretoria to Witbank, extending onto ridges in the Stoffberg and Roossenekal regions, as well as west of Krugersdorp centred in the vicinity of Derby and Potchefstroom, extending southwards and northwards from there. The altitude of this vegetation type varies between 1 300-1 635 m, but reaches 1 760 m in places (Mucina & Rutherford, 2006). The vegetation is species-rich, wiry, sour grassland alternating with low, sour shrub land on rocky outcrops and steeper slopes. There is a high diversity of herbs, many of which belong to the Asteraceae, which is also a typical feature. Rocky hills and ridges carry sparse (savannoid) woodlands with Protea caffra subsp. caffra, Protea welwitschii, Acacia caffra and Celtis africana, accompanies by a rick suite of shrubs among which the genus Sersia (S. magalismonata) is most prominent.

According to the Mpumalanga Biodiversity Sector Plan of 2014, the site is classified as, Moderately to Heavily Modified (Old Lands).

Terrestrial Ecology: Moderately / Heavily modified - The MTPA objectives for these areas are quoted as offering the most flexibility regarding potential land-uses, but these should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality. Authorization is still required for high impact land uses.

Modified lands includes the largest extent of the site and consist mostly of open lawns and camping sites, covered with grass (Cynodon dactylon and Pennisetum clandestinum) and indigenous and exotic trees introduced for the purpose of providing shade. Stands of Eucalyptus sp are located on the northern side and the road reserve as well as individual trees elsewhere. Large numbers of indigenous Searsia lancea is present across the site. A rock dump area is located on the western section and a dwelling on the southern boundary. The ecological importance and sensitivity of this community is Low.

Fragmented rocky grassland only exceeds small fragments of this project area and the natural habitat remains intact on the eastern and western edges of the site. Shallow, solid sandstone outcrops are present and limit the vegetation cover and diversity. The shrubs Lopholaena coriifolia and Seriphium plumosum (Stoebe vulgaris) are locally dominant on the western fragments. Grass cover is dominated by Hyparrhenia hirta, Aristida adscensionsis and A. congesta. Storm water is discharged onto the eastern section near the entrance, and this creates temporary wetness on the rock bank situated in this area. As a result, the hygrophilous grass, Imperata cylindrica has colonized a small area on this outcrop. No Red Data Listed (RDL) or endemic species were recorded. The recorded biodiversity is low, and the ecological importance and sensitivity is *Medium*.





Freshwater Ecology:

Freshwater Ecology, according to the Mpumalanga Biodiversity Sector Plan of 2014, the site falls within the class namely, heavily modified, and other natural areas.

The property is located to the north of the Middelburg Dam. No wetlands were identified within the proposed project areas.



FIGURE 4: FRESHWATER ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014

4.4 Surface and Groundwater

The study site is located on the extreme northern bank of the Middelburg Dam.

The site was investigated to identify wetlands and watercourses. It can be stated that no wetlands or watercourses regulated by the National legislation are present or will be affected.



FIGURE 5: WETLANDS ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014

4.5 Land use

The study site is located on the extreme northern bank of the Middelburg Dam and is currently utilised as a Municipal Resort. The natural vegetation is largely displaced by lawns and camping grounds as well as dwellings and infrastructure.

4.6 Geology and Soils

In terms of the published geological map sheet of South Africa, Counsel of Geoscience 2014, the area is underlain by massive generally red, porphyritic felsite/rhyolite, pyroclastic rocks sandstone / quartzite of the Kwaggasnek Formation, Rooiberg Group, Transvaal Supergroup. The ground mass of the Kwaggasnek Formation is predominantly composed of quartz and feldspar (K-feldspar) with varying proportions of opaque minerals, mainly a mixture of ilmenite and magnetite. The Kwaggasnek Formation is >1000m thick, and a laterally extensive shale/tuff unit underlain by a layer of volcanic breccia, called the Union Tin Member, forms the top of the formation and a quartzite, pyroclastic flow layer the base of the formation. (Please refer to Figure 6)

A topsoil horizon some 0,1 to 0,3m thick is prevalent throughout the proposed township, where it mostly comprises of abundant gravels in a brown, silty sand matrix with numerous grass roots. Finer surficial topsoil was noted locally. For the most part, the topsoil directly overlies a pebble marker gravel horizon, that in turn overlies reworked residua, residua and/or bedrock rhyolite.

The abovementioned soils profiled as completely weathered, either overlie residual rhyolite, that tends to have slightly lower Atterberg Limits and a slightly improved PRA Classification, but with a mostly similar grading modulus and Unified Soil Classifications. The bedrock rhyolite was also subjected to indicator tests since the material included a weathered component.



FIGURE 6: GEOLOGICAL MAP

4.8 Heritage

The proposed project site is situated on a historically disturbed recreational land. The Middelburg dam and recreational facility was established between 1965 and completed in the 1978. Existing infrastructure consisted of an entrance gate, an office building, a water pump station and manager's house. Ablution facilities and other buildings on the site are located outside of the project area. There are several camping sites, a jungle gym for children, a waste dump and an area where building rubble is dumped. The entire area has been maintained well over the years and the grass was cut short which made visibility excellent.

Several soil samples have been dug as part of the pre-feasibility studies for the proposed project. These soil samples have been investigated for any signs of archaeological material, but none was found. The infrastructure on the property is not yet 60 years old. The survey did not reveal any archaeological or cultural historical features, and no graves were observed.

It must be noted that distinct archaeological material or human remains may only be revealed during the development of further agricultural operations. In such instance, a qualified archaeologist must be contacted to monitor the activities and make a recommendation

4.9 Socio-Economic Environment

Mpumalanga has a population of about 4.68 million people, just under 8% of South Africa's total population. Steve Tshwete Local Municipality (STML) has an estimated population in 2020 of 331 143 people and is expected to grow to 509 355 in 2030. This would see the municipality's share of the Nkangala District Municipality grow from about 21% to about 25%.

Out of a population of 317 187, 40% are youth (15-34). 53% of the population is employed. 34% is unemployed and 13% is economically inactive. Unemployment rate 18.8% in 2019 (17.3% in 2020, up from 15.4% in 2015). The youth unemployment rate is 27.1% but is higher for female youth (41.9% in the age range 15-24 in 2019). It is estimated that in STLM just under 28% of the population lived below the lower-bound poverty line in 2019 the lowest portion in the province. However, this had increased from 23.2% in 2015 and is likely to have deteriorated in 2020 due to COVID-19.

STLM has a high functional literacy rate at 89%. This is the second highest rate in the province. STLM also has a high matric pass rate consistently around the 85% mark or higher. It has generally improved in recent years, but dropped in 2020 to 84.7%, probably due to COVID-19. STLM has the highest admission rate to university or degree studies in the province, with 42% of matriculants qualifying for degree studies in 2020.

STLM makes the third largest contribution to the Mpumalanga economy of local municipalities in the province. It contributes 14.3% to the provincial GDP. The total size of the Steve Tshwete Local Municipality economy in 2020 prices was estimated to be R53 billion. The municipality has generally outperformed the province economically, constantly growing at higher rates. The average economic growth rate for Steve Tshwete Local Municipality between 1996 and 2019 was 2.4% but dropped to 0.8% for the period of 2014 to 2019.

Eco-tourism activities in the form of game farms are primarily consolidated in the mountainous northwestern and northern extents of the LM where abundant grazing land and water from the Olifants River are available, while the major tourism destination within the municipal area is the Loskop Dam and surrounds. Apart from the local eco-tourism opportunities, the municipal area is home to several historically important sites and areas. The Middelburg municipal area is traversed by the historic Pretoria-Maputo railway line, which played an important role during the Anglo-Boer War. The Botshabelo Mission Station is another key historical site which was originally a place of refuge for Christians, Botshabelo Mission Station grew into an important and rather influential centre where the Gospel was widely proclaimed among people.

The socio-economic impact of the development of the Middelburg Dam will be largely determined by the number of jobs, the nature of the jobs created, and the revenue generated by the development opportunities.

The STLM Tourism Strategy seeks to create 300-500 direct jobs in 3 years. It is anticipated the development opportunities have the potential to create 88 direct tourism jobs at the Middelburg Dam, plus an additional 10 jobs maintaining and securing the dam precinct. These will be combination of low-skilled, semi-skilled and skilled jobs, in a mix of income categories.

It is estimated that these direct jobs created through the development of the dam will generate in the region of R9 million per annum in income for households in STLM.

The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

<u>Visual Impact Assessment</u>

The proposed area is currently zoned for leisure purposes and existing infrastructure consisted of an entrance gate, an office building, a water pump station, and manager's house. Ablution facilities and other buildings on the site are located outside of the project area. There are several camping sites, a jungle gym for children, a waste dump, and an area where building rubble is dumped. The entire area has been maintained well over the years The development of an area of approximately 18.7 hectares, will therefore fit with all the surrounding land uses and will therefore not have a significant visual impact. For this reason, no visual impact assessment was conducted.

Heritage Impact Assessment

A Heritage Impact Assessment was conducted on the approximately 18.7-hectare property to identify any possible artefacts or structures which could be of heritage or cultural significance. The findings of the investigation are discussed in Section 4.8 above and the Heritage Impact Assessment is attached as Appendix D.

Paleontological Assessment

The Screening Report issued by the Department of Environmental Affairs showed medium paleontological sensitivities. A Paleontologist was consulted who recommended that no PIA is needed for this site as it lies on volcanic rocks of the Selons River Formation (Rooiberg Group) and therefore there is no chance of fossils occurring there.

Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

An Ecological Impact Assessment was conducted on the 18.7-hectare property to identify any ecological sensitive areas within the project area. The specialist delineated the project area so that it is best fit for development. It is recommended that these natural areas should be conserved to ensure that the present state of biodiversity is not affected and that the operational plan be designed to conserve these areas within a buffer zone.

<u>Avian Impact Assessment</u>

The main anticipated impact on the environment will not be the loss or fragmentation of natural habitat as large tress will be conserved. The Biodiversity Specialist also addressed this in Section 5.3 of the Ecological Assessment.

<u>Socio-economic Assessment</u>

The proposed project will not have any negative impact on the socio-economic environment. A tourism impact assessment and tourism potential assessment is in the process of being undertaken and will provide more information on the socio-economic impact the Middelburg Precinct Plan will have on the surrounding environment.

Additional job opportunities will be created during the construction and operational phase of the project, which will impact the surrounding community positively.

As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required.

METHODOLOGY OF ASSESSING THE SIGNIFICANCE 6 **OF IMPACTS**

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) would be described, as shown in Table 2. These criteria are then used to determine the SIGNIFICANCE of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

Criteria	Category	Description
Extent or spatial influence of impact	Regional	Beyond a 30km radius of the candidate site.
	Local	Within a 30km radius of the candidate site.
	Site-specific	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	High	Natural and/ or social functions and/ or processes are severely altered
	Medium	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	Low	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	Very low	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	Zero	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
Duration of impact	Long-term	More than 10 years after construction
	Medium-term	Up to 5 years after construction
	Construction-term	Up to 3 years

TABLE 2: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS

The SIGNIFICANCE of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

TABLE 3: DEFINITION OF SIGNIFICANCE RATINGS

Significance ratings	Level of criteria required
High	High magnitude with a regional extent and long-term duration
	• High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration
	Medium magnitude with a regional extent and long-term duration
Medium	High magnitude with a local extent and medium-term duration
	High magnitude with a regional extent and construction period or a site-specific extent and long-term duration
	High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration
	• Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term
	Low magnitude with a regional extent and long-term duration
Low	High magnitude with a site-specific extent and construction period duration
	Medium magnitude with a site-specific extent and construction period duration
	• Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term
	 Very low magnitude with a regional extent and long-term duration
Very low	Low magnitude with a site-specific extent and construction period duration
	Very low magnitude with any combination of extent and duration except regional and long term
Neutral	Zero magnitude with any combination of extent and duration

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in **Table 4** and **Table 5**. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table 6**.

TABLE 4: DEFINITION OF PROBABILITY RATINGS

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

TABLE 5: DEFINITION OF CONFIDENCE RATINGS

Confidence ratings	Criteria
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

TABLE 6: DEFINITION OF REVERSIBILITY RATINGS

Reversibility ratings	Criteria
Irreversible	The activity will lead to an impact that is in all practical terms permanent.
Reversible	The impact is reversible within 2 years after the cause of the impact is removed.

7. ENVIRONMENTAL IMPACT ASSESSMENT

The biophysical and social environment will be impacted during the establishment and operational phases of the agricultural activities. For this reason, the impacts below are assessed for both phases.

7.1 Impacts during construction phase

The establishment of the Middelburg Dam Precinct Plan area is likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- Impact on biodiversity;
- Generation of dust;
- Impact on soil;
- Impact on water resources;
- Impact on heritage resources
- Impact on traffic
- Socio-economic impact.

7.1.1. Impact on biodiversity

Description of the potential impact

During the establishment of the project area, vegetation within the footprint of the site must be cleared.

According to the Mpumalanga Biodiversity Sector Plan, 2014, the site falls within the class namely, *Moderately to Heavily Modified (Old Lands).* The portion of the property proposed for development, consist mostly of open lawns and camping sites, covered with grass (*Cynodon dactylon* and *Pennisetum clandestinum*) and indigenous and exotic trees introduced for the purpose of providing shade. No Red Data Listed (RDL) or endemic species were recorded.

Significance of the impacts

The recorded biodiversity for the proposed site footprint is low, and the ecological importance and sensitivity is *Medium*. No threatened or RDL biota was recorded on the site, and none is expected to be negatively affected.

The specialist report therefore identified the sensitive areas within the proposed development site (fragmented grassland) as well as the areas to be used for development which are of low biodiversity sensitivity.

The map below (Figure 7) shows the areas suitable for development and the areas not suitable for development.



FIGURE 7: HABITAT DELINEATION AND BIOPHYSICAL FEATURES OF THE STUDY SITE

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TABLE 7: SIGNIFICANCE OF BIODIVERSITY IMPACT

IMPACT		BEFORE MITIGATION						
	Significance	Probability	Impact Rating					
Impact on biodiversity [NEGATIVE]	Medium	Probable	Sure	Reversible	Medium	Low		

Mitigation measures

- Where possible, large indigenous trees on site must be retained;
- Implement an alien invader vegetation control program;
- Spoil material may not be pushed into the natural habitats.
- It is recommended that an Environmental Control Officer (ECO) is appointed during the construction phase of the project.
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the construction and operational phases of the project.

7.1.2. Generation of dust

Description of the potential impact

Vegetation will be removed, and soil will be disturbed during the construction phase of the project. Heavy moving vehicles used to clear vegetation on site, could generate dust affecting adjacent landand road users.

Significance of the impact

Road users using the Wonderfontein road (R104) could be affected by the generation of dust. The impacts associated with the generation of dust is however of short duration and therefore the significance of the impact is low. Mitigation measures must however be implemented to minimise the possibility of the impact occurring.

TABLE 8: DUST GENERATION

ІМРАСТ		BEFORE MITIGATION						
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating		
Dust generation [NEGATIVE]	Medium	Probable	Sure	Reversible	Low	Very Low		

Mitigation measures

- Areas may not be disturbed and left unattended for long periods of time;
- Heavy moving vehicles and other vehicles must adhere to a speed limit of 40km/h; and
- Recommendations included within the Environmental Management Plan must be adhered to.

7.1.3 Impact on soil

Description of the potential impact

Removal of vegetation will disturb the soil surface and increase the possibility of soil erosion. Other activities which could also have an impact on soil, include the uncontrolled use of hazardous substances and/or heavy machinery. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

Significance of the impact

Based on the investigation undertaken, the proposed project area has been divided into two zones (Figure 8), each with a characteristic soil profile and/or range of geotechnical constraints. Areas designated S dominate the property (Figure 8) and are mostly characterised by surficial topsoil overlying a pebble marker gravel horizon that in turn overlies reworked residua, residua, and bedrock rhyolite

The area designated P(f) (Figure 8) is characterised by uncontrolled fill, the full thickness of which could not be determined because of restricted access. As such, it has been Classified as P(fill) [7] and is not suitable for development. This area should ideally be zoned as "Public Open Space", or more detailed investigations must be undertaken.

During construction, soil could be impacted by the following:

- Erosion; and
- Contamination with the use and possible spillage of hazardous substances.

The slope of the proposed project area is relatively flat and for this reason the possibility of erosion occurring is low. The impact is subsequently classified to be of low significance prior to the implementation of mitigation measures.

Another factor impacting soil would be the possible spillage of hazardous substances. This impact is of medium magnitude, site specific and short duration and for this reason the impact is of also of low significance prior to the implementation of mitigation measures.



FIGURE 8: NHBR CLASSES



FIGURE 9: ENGINEERING GEOLOGICAL MAP

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TABLE 9: IMPACT ON SOIL

IMPACT		AFTER MITIGATION				
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Erosion [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low
Soil pollution [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low

Mitigation measures

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and clearance of vegetative cover must be restricted to the proposed footprint.
- Measures to reduce the velocity of water, must be taken on areas prone to erosion.
- Should there be any spillage of hazardous substances during the establishment phase, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.
- Since the area has been occupied for many years, the possibility of buried fill, e.g., soak ways, ash/waste/compost pits etc., cannot be discounted, and their possible presence must be borne in mind during further development. Should fill of any nature be encountered in the foundation excavations, the material must be removed to spoil and be replaced with suitable, inert, material in controlled layers,
- The results from pH and conductivity tests on saturated paste extracts from representative samples of the regolith reveal that the pH of percolating groundwater is potentially acidic, although the conductivity of the soils suggest corrosion through stray currents is not a constraint. As such, buried services should ideally be non-metalliferous, i.e., polypropylene or sim.

7.1.4 Impact on water resources

Description of the potential impact

In terms of the freshwater ecological classification, according to the Mpumalanga Biodiversity Sector Plan of 2014, the site falls within the class namely, heavily modified, and other natural areas.

The property is located to the north of the Middelburg Dam. A jetty is proposed to be constructed for various activities proposed for recreational purposes. The construction of the jetty will entail that more than 10 cubic metres of sand and/or soil is moved, removed or dredged within a watercourse. This could have a possible impact on the watercourse and must therefore be assessed.

No wetland areas were identified within the proposed project area.

During construction water will be abstracted from the dam. Excessive abstraction could have a negative impact on the water resource.

Significance of the impact

If any activities were to take place within or within a close proximity to the Middelburg Dam, water resources would be impacted negatively. As mentioned above, a jetty will be constructed for recreational purposes. However, should mitigation measures be adhered to, the impact on the watercourse would be minimised.

Except for recreational activities, no construction activities are allowed within the 1:200-year flood line. The impact on the water resource during the construction activities are rated to be of medium significance prior to the implementation of mitigation measures.

TABLE 10: IMPACT ON WATER RESOURCES

IMPACT		BEI	FORE MITIGATIO	N		AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on water resources [NEGATIVE]	Low	Unlikely	Sure	Reversible	Medium	Low

Mitigation measures

- No activities may take place within the 1:200-year flood line. •
- Management activities be focused on maintaining water quantity and quality and the integrity • of natural habitat in the sub-catchment.

7.1.5 Impact on Heritage

Description of the potential impact

A Heritage Impact Assessment was conducted on the approximate 18.7-hectare property to identify any possible artefact or structures which could be of heritage or cultural significance. The specialist assessment concluded that there were no archaeological or historical features within the perimeter of the proposed site.

Significance of the impact

The significance of the impact on heritage resources is therefore of low significance.

TABLE 11: HERITAGE RESOURCES

IMPACT		BEFORE MITIGATION						
	Significance	icance Probability Confidence Reversibility Impact Rating						
Impact on heritage resources [NEGATIVE]	Low	Unlikely	Sure	Reversible	Low	Very Low		

Mitigation Measures

Distinct archaeological material or human remains may only be revealed during the development of the proposed agricultural operations. In such instance, a qualified archaeologist must be contacted to monitor the activities and make recommendations.

7.1.6 Impact on traffic

Description of the potential impact

The construction activities are likely to generate additional traffic in terms of construction vehicles and heavy vehicles delivering materials to the site. It is therefore expected that there will be an impact on traffic seeing that the Wonderfontein road (R104) forms part of the primary access to the study area.

Significance of the impact

The current access routes to the proposed site is however adequate and therefore the significance of this potential impact is considered to be low if the proposed mitigation measures are implemented.

TABLE 12: IMPACT ON TRAFFIC

IMPACT		BEI	FORE MITIGATIO	N		AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Traffic [NEGATIVE]	High	Unlikely	Sure	Reversible	Low	Very Low

Mitigation Measures

- Clear signs should be displayed along the Wonderfontein road (R104) and entrance to the site indicating that it is a construction site.
- All necessary signage and traffic measures, such as speed limits, must be implemented for safe movement of vehicles to and from the site
- Caution to be taken to ensure construction vehicles are not parked in such a way as block through/passing traffic.
- Proper and adequate lanes to allow for ingress/egress to be provided.
- Access to the development should utilise multiple entry/exit sites where possible to decrease traffic at the development site.

7.1.7 Socio-economic Impact

Description of the potential impact

During establishment, various temporary job opportunities will be created during the construction phase of the project.

In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act 85 of 1993.

Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities and impact associated with health and safety of employees respectively.

The job opportunities during the construction phase are short-lived and therefore the impact is only of medium (+) significance. In terms of the health and safety aspects of workforce, the significance of the impact has been rated to be of low significance due to the short construction timeframe. Mitigation measures must however be adhered to.

IMPACT		BEFORE MITIGATION						
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating		
Job opportunities [POSITIVE]	Medium	Definite	Sure	Reversible	Low	Medium (+)		
Health and Safety [NEGATIVE]	Medium	Probable	Sure	Reversible	Low	Very Low		

TABLE 13: SOCIO-ECONOMIC IMPACT

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Mitigation measures

The applicant and/or contractor must ensure that local residents receive preference for job opportunities where local labour might be required.

It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

7.2 Operational Phase Impacts

During operation, the tourist activities are likely to result in the following environmental and socioeconomic impacts:

- Impact on biodiversity;
- Impact on soil;
- Impact on water resources;
- Impact on Sanitation and Waste management
- Socio-economic impact

7.2.1. Biodiversity Impact

Description of the potential impact

Although the area consists mostly of open lawns and camping sites, covered with grass (*Cynodon dactylon* and *Pennisetum clandestinum*) and indigenous and exotic trees introduced for the purpose of providing shade, the spread of alien invasive plant species must be managed and mitigated. Invasive plant species within the perimeter will impact the biodiversity of the surrounding areas.

Significance of the impacts

Invasion of alien invasive species and use of pesticides and herbicides:

When natural vegetation is removed and activities are undertaken, the opportunity for invasive plant species within the perimeter of the site will increase and will be problematic if not adequately removed or managed. Alien vegetation is normally removed mechanically or chemically. Using harmful chemicals would kill all pest and alien vegetation but also affect other insects and mammals which must be protected. Mechanical removal or removal of alien vegetation by hand is therefore preferred above the chemical treatment thereof.

The impact of alien vegetation and the control thereof is therefore of medium significance prior to the implementation of mitigation measures.

TABLE 14: IMPACT ON BIODIVERSITY

IMPACT		AFTER MITIGATION				
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on biodiversity (Alien invasive species) [NEGATIVE]	High	Definite	Sure	Reversible	Medium	Low

Mitigation measures

- An Invasive Species Management Programme must be compiled and complied with during the operational phase of the project;
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.2.2 Impact on soil

Description of the potential impact

During operation, activities could lead to the loss of topsoil and erosion through inefficient landscaping and landscaping maintenance, as well as poor stormwater management and design of infrastructure.

Soil could also become polluted if sewage accidentally spills as a result of poor maintenance of sewage pipelines and connections.

Significance of the impact

During operation, soil could be impacted by the following:

- Erosion; and •
- Contamination. •

The slope of the area on which the development is proposed is relatively flat and therefore, the probability of erosion occurring is low. For this reason, the impact is classified to be of very low significance.

The implementation of dry sanitation systems will prevent soil contamination through sewage discharge and as a result thereof the impact is however of low magnitude, local extent and medium duration and for this reason the impact is of low significance prior to the implementation of mitigation measures.

TABLE 15: IMPACT ON SOIL

IMPACT		BEFORE MITIGATION					
	Significance	Significance Probability Confidence Reversibility Impact I Rating					
Erosion [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low	
Soil contamination [NEGATIVE]	Medium	Probable	Sure	Reversible	Low	Very Low	

Mitigation measures

- Topsoil conservation practices as per the Environmental Management Programme to be strictly implemented.
- Topsoil to be stored separately and protected for rehabilitation purposes and for use in the landscaping.
- Sewage infrastructure must be inspected and maintained on a regular basis.
- Make use of dry sanitation systems

7.2.3 Impact on water resources

Description of the potential impact

In terms of water use, the development will draw water from the Middelburg Dam. Water will be treated and used as potable water.

Recreational water activities are proposed during the operational phase of the development and therefore water resources could be impacted by means of the following:

- Excessive water use;
- Pollution of water resources if pollutants enter the watercourse.

Significance of the impact

Water is a scarce resource in South Africa and therefore unsustainable water use will result in lower flows and reduced water table levels. The impact is however of medium significance and appropriate measures must be adhered to ensure proper management of water use.

As water-related recreational activities are proposed to be undertaken as part of the proposed development, the quality of water could be affected if fuel or oil leaks occur from motorised boats or jet ski's etc. The impact is therefore of medium significance prior to the implementation of mitigation measures.

TABLE 16: IMPACT ON WATER RESOURCES

IMPACT		BEFORE MITIGATION					
	Significance Probability Confidence Reversibility Impact Rating					Impact Rating	
Water resource use [NEGATIVE]	High	Probable	Sure	Reversible	Medium	Low	

Mitigation Measures

- Water abstraction must be regulated and monitored.
- No activities, except for water-related recreational activities may take place within the 1:200year flood line
- Effective monitoring and maintenance of all water reticulation infrastructure should be implemented to ensure no leakages.
- Consumption of water should be monitored.
- Water-wise practices should be listed and recommended to visitors and staff.

7.2.4 Impact on Sanitation and Waste Management

Description of the potential impact

During the operational phase failure of sanitation systems (pump station and sewage pipelines) and the lack of infrastructural maintenance coupled with poor operation may lead to contamination of the ground, groundwater and surrounding water systems. As per the recommendations following the geotechnical assessment conducted, the current soil conditions require the implementation of a dry sanitation system.

General waste must also be disposed of during the operational phase. Improper management and disposal of such waste will have a negative impact on the surrounding environment.

Significance of the impact

The significance of this potential impact is medium prior to the implementation of proposed mitigation measures.

TABLE 17: IMPACT ON SANITATION AND WASTE

IMPACT	BEFORE MITIGATION				AFTER MITIGATION	
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on Sanitation [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Medium	Low
Impact on Waste	Medium	Unlikely	Sure	Reversible	Medium	Low

Mitigation measures

- During the operational phase there should be periodic inspections of the sewage systems to identify any system failure which could lead to contamination. Any leaks and failures of the sewer system must be fixed immediately, and areas rehabilitated as needed.
- A waste management plan must be in place to ensure appropriate collection, processing, and disposal of solid waste
- Reuse, recycling, and separation-at-source of waste should be promoted.

7.2.5 Impact on infrastructure due to flood events

Description of the potential impact

It is important to ensure that the proposed development is situated outside of flood prone areas. Middelburg Dam is a category 3 dam in the basin of the Klein Olifants River with a catchment area of 1576km² and fully supply surface area of 450ha. The dam wall is 36m in height and 625m long. It has a capacity of approximately 50 000 000m³.

It is a buttress type dam on a rock foundation with a four radial gates in the spillway section.

Significance of the impacts

The 1:200-year peak flow for the catchment area is calculated as 1600m³/s. The associated elevation to which the water in the dam will rise in such an event is below the full supply elevation, which is 1512.42m, of the dam.

The Regional Maximum Flood for the catchment area is calculated as 2500m³/s, which can pass effectively through the radial gates and spillway without overtopping the dam wall.

The Safety Evaluation Flood is calculated as 4000m³/s but for the dam safety analysis it is recommended to use a peak flow of 5000m³/s.

The flood elevation to which the water will rise during the Safety Evaluation Flood is 1515.41m, assuming all the radial gates are opened and functioning properly. Should these gates not be opened for some reason, the water level could rise to 1517.36m, which is indicated as the red line within Figure 10.

Based on the methodology detailed in Section 5, the following ratings have been assigned to the 'flood events' impact before and after mitigation.

IMPACT BEFORE MITIGATION				AFTER MITIGATION		
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on infrastructure due to flood events [Negative]	Medium	Unlikely	Sure	Reversible	Low	Very Low

TABLE 18: SIGNIFICANT IMPACT OF FLOOD EVENTS

Mitigation measures

The Safety Evaluation Flood for the Middelburg Dam under worst case scenario where all the radial gates are closed, and the dam wall is overtopped will be the most conservative flood elevation for the proposed precinct development.

This elevation is 1517.36m and shown on the following flood line map. It is recommended that no development or infrastructure should be constructed below this level.



FIGURE 10: MIDDELBURG DAM FLOODLINES

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7.2.6 Socio-Economic Impact

Description of the potential impact

The operation of Middelburg Dam Precinct Plan will provide additional permanent job opportunities for previously disadvantaged individuals and seasonally, the leisure activities will be providing even more job opportunities on a temporary basis. This will have a positive impact on the livelihoods of the employed. The proposed tourist activities will have a positive impact on the local economy.

Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities' impact before and after mitigation. As permanent job opportunities are created with the operation of this development, the impact is of High (+) significance.

TABLE 19: SIGNIFICANT IMPACT OF THE 'EMPLOYMENT OPPORTUNITIES' IMPACT

IMPACT	BEFORE MITIGATION				AFTER MITIGATION	
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	Medium	Definite	Sure	Reversible	Low	High (+)

Mitigation measures

Creating jobs and business opportunities for the local community will have a positive impact. No mitigation measures would be required to further enhance this impact; however, the applicant must ensure that local residents receive preference for job opportunities.

7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

TABLE 20:	ENVIRONMENTAL	Імраст	STATEMENT
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IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES				
Establishment and Operational Impacts						
Biodiversity Impact	Medium	Low				
Generation of dust	Low	Very Low				
Erosion	Low	Very Low				
Soil Pollution	Low	Very Low				
Impact on water resources	Medium	Low				
Impact on heritage	Low	Very Low				
Impact on traffic	Low	Very Low				
Job opportunities	Low (+)	High (+)				
Health and Safety	Low	Very Low				
Operational Phase Impacts						
Biodiversity Impact	Medium	Low				
Loss of habitat for fauna	Low	Very Low				
Erosion	Low	Very Low				
Soil contamination	Low	Very Low				
Impact on water resource	Medium	Low				
Impact on Sanitation	Medium	Low				
Impact on Waste Management	Medium	Low				
Impact on infrastructure due to flood events	Low	Very Low				
Socio-economic Impact	Low (+)	High (+)				

8. CONCLUSION AND WAY FORWARD

8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated • with the construction and operation of the Middelburg Dam Precinct Plan.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decisionmaking and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of medium to low significance as the area is already transformed and used as a camping facility. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under Section 6.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

8.2 Way Forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DARDLEA) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be submitted to the DARDLEA for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

9. REFERENCES

National Environmental Management Act 107 of 1998 (NEMA 107, 1998)

General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)

Mpumalanga Biodiversity Conservation Plan, 2014

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