

ENVIRONMENTAL SCOPING REPORT FOR THE PROPOSED BRICK MAKING PROJECT: LISELO COMMUNAL AREA, ZAMBEZI REGION



Assessed by:

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This Study Report on the Environmental Impact Assessment (EIA) study report is submitted to the National Environment Management Authority (NEMA) in conformity with the requirements of the Environmental Management Act, 2007 and the Environment Impact Assessment and Audit Regulations, 2012.

November 2020

DECLARATION

The Consultant submits this study report on the Environmental Impact Assessment (EIA) Study report for Pumba Bricks & Construction CC as the project proponent. I certify to the best of my knowledge that the information contained in this report is accurate and truthful representation as presented by the client.

NYEPEZ Consultancy cc REG. No. CC/2016/07561

Signature: _____

Proponent:

I, Pumba Bricks & Construction CC (Owner) do certify to the best of our knowledge that information contained in this report is accurate and truthful representation.

P.O Box 21672 - Pumba Bricks & Construction CC, Namibia Signed: _____ Signed
on: _____ day of: _____ 2020

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PROPOSED BRICK MAKING PROJECT AT LISELO COMMUNAL AREA IN ZAMBEZI REGION

Land Use: Brick Making Project

Total Site Area: 1.5 Hectares (15 000m²)

1. PURPOSE OF THIS DOCUMENT

The purpose of this document is to provide a brief description of the proposed activity and to enable Interested and Affected Parties (I&Ps) to register and participate in the EIA process, as well as comment on the environmental, social and economic aspects relating to the project.

Pumba Bricks & Construction CC is registered company involved in the business of brick making at the town of Katima Mulilo. The business has been in operation for past 4 years at a rental premise along the trans Caprivi high way. Pumba Bricks & Construction CC plans to relocate it operation to new plot in the Liselo Area, a plot measuring 1.5 hectares. This will allow the business to be more competitive by reducing the funds spent on renting the existing place, it will also increase the daily production as we will have more space on the new plot.

The initial activities on the plot will be as follows.

- Clearing the plot
- Fencing
- Water and electrical supply connection
- Construction of buildings and septic tank
- Brick manufacturing (main activity)

The process of brick making involves three (3) raw materials sand, stones (aggregate) and Cement. The 3 components are mixed at a certain ratio, then water is added, thereafter the mixture is moulded in the machine. Once the bricks are ejected from the machine, they must be cured for at least 24 hours, before being moved to a stacking area and allowed to fully cure for at least 14 days.

2. AUTHORIZATION PROCESS

The process of obtaining ECC for sand mining related activities requires that a Sand Mining Questionnaire be completed by the proponent and consent in a form of signature by the local authorities.

The proponent has obtained the consent and proof from the sand service provider (where the proponent often buy sand) and would like to submit the application for the ECC.

3. PROJECT LOCATION

The site is situated within the Liselo Communal Area as per the attached locality map. The site is situated South West part of Katima Mulilo, about 5 kilometre from the Katima Mulilo town CBD. In the vicinity of the project area, other development establishments such as Sigle residentials, SME business shops, truck port, warehousing, tourism and recreational establishments exist. These general businesses and tourism recreational facilities fall within the Katima Rural Constituency in the boundaries of the Liselo communal area, under the jurisdiction of Mafwe Traditional Authority. The new site is currently undeveloped but partly cleared with installed basic services such as water, roads, and electricity, making it easier to connect to the new proposed business establishment.

The proponent (Pumba Bricks & Construction CC) have acquired a consent letter from Mafwe Traditional Authority, which give the right for ownership of the land through customary land right and this right is registered with the Ministry of Land Reform and is awaiting a Leasehold certificate from the Ministry of Land Reform. As a result the security of tenure is secure and no future land dispute may arise over the issue of land ownership.

A portion of the proposed project site is already cleared, as a result of the existing and ongoing developments in the Liselo area. The project site will therefore be used for purposes of Brick making operation, finished brick reservation site, loading bays and offloading of material and workers resting shelters and ablution facilities. However other future land use activities envisioned to be incorporated on the business are;

1. Grocery shop/Butchery
2. Printing shop
3. Small garden
4. Garage
5. Car wash

Currently, the project area has **no** dense vegetation cover on-site, apart from few shrubs that exist. Thus because of the ongoing developments in the sounding area, the project site is already disturbed with no sensitive flora or fauna. As a result of its proximity to town and to other residential establishments, the

area has high potential and demand for development, which have seen an increase in development and changes in land uses from customary land rights to commercial business.

The project site is relatively dry and flat in nature with dominance of sandy characterized by shrubs, savannah grassland and few silver terminalia wood forest. There are no natural water sources that would hinder disturbance to both livestock and wildlife water consumption in the area. The site is easily accessible with an existing gravel road going to Nova and maintenance of this existing road infrastructure is under of Namibian Road Authority(RA).



Figure 1: Project site area

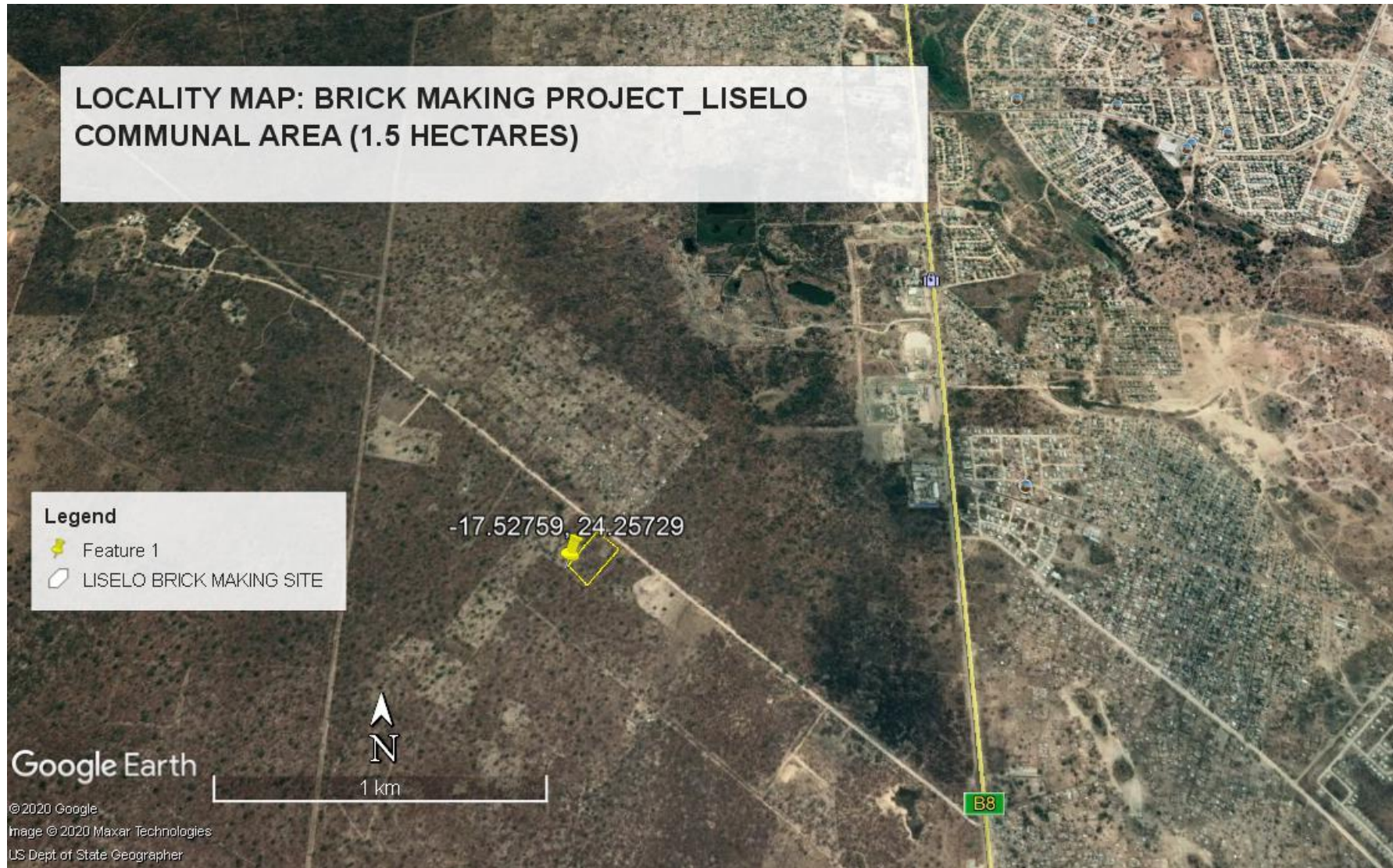


Figure 2: Project locality & access gravel road

Currently the company employees 13 semi-skilled people, this number might increase to 16 once our daily production increases. Services such as water will be supplied by Namwater, and electricity will be supplied by NORED. Refuse removal will be done by us, by using the delivery lorry to take the garbage to dumping site.

1. INTRODUCTION

1.1 Background

Pumba Bricks & Construction CC Intends to acquire an Environmental Clearance Certificate for the development and operations of the proposed Brick making project. This is according to the Environmental Act of 2007, where this type of developments is listed as activities which required Environmental Management Plan.

Currently the land is partly cleared but vacant and no major infrastructural development has taken place on the land apart from the brick making slab, and water services installed on the site. Pumba Bricks & Construction CC therefore wish to apply for a clearance certificate so as to full fill the requirements of the environmental act. The site falls with the Liselo communal land boundary, the size is 1.5 hectares of land, which is an area situated about 5 km South west of the town of Katima Mulilo.

The Proposed development is aimed at providing brick supply to newly construction development in the town of katima mulilo (which may include Single residential, General Residential, General Businesses and/or institutional building developments), and to supply (Hallow 8inch large bricks) to any clients in the Zambezi Region. Pumba Bricks & Construction cc saw an urgent need to undertake this project having observed the high demand of development in the town of Katima Mulilo and the Zambezi Region, which will have positive impact on the local residents in Katima Mulilo and local communities thereby contributing to the socio-economic, infrastructural development, welfare of the area and livelihood of local communities through employment creation and service delivery.

The site falls under the jurisdiction of Mafwe Traditional Authority under Liselo communal area, who have in principle approved the allocation of the site to Pumba Bricks & Construction cc. Upon this development a Leasehold will be applied to the Ministry of Land Reform to register the portion for this development. According to the Zambezi Integrated Rural Land Use Plan the project site area falls within the residential and business zone in which the following Land use activities are permitted: Single residential, Recreational development, General business and General residential activity and there is no conservancy that exists in the area.

According to Namibia's Environmental laws, an Environmental Management Plan for the proposed development needs to be undertaken and an Environmental and Social Management

Plan (ESMP) prepared for submission to MET in order to obtain environmental clearance for the development to proceed.

The developer also the owner of Pumba Bricks & Construction CC of the proposed brick making project development appointed Nyepez Consultants to conduct the Environmental Assessments and develop an Environmental and social Management Plan (ESMP) and accompanying report for the proposed Pumba brick making on a small piece of Communal land. An Environmental Scoping Study will be undertaken to identify key biophysical and social concerns related to the project. During October 2020, the consultant conducted site visit and communicated with a range of stakeholders to determine these issues or concerns and this report contains such findings.

1.2 Terms and reference

The terms of reference for this Environmental Assessment is to determine the potential bio-physical and social impact emanating from the operation of brick making project. The aims and objectives of the assessment are:

- To establish and describe the known ecological baseline conditions for environmental, health and social conditions existing in the project area from secondary information and a reconnaissance site visit
- To conduct an environmental impact identification and assessment and to provide a description of the likely environmental impacts of the proposed project during the construction and operation phases
- To also demonstrate that the Environmental Assessment complies with the current and/or expected Namibian legislation requirements for environmental, social performance and health.
- To identify and draft actions for environmental and social management plan of the proposed farming project
- To identify and document mitigation measures to minimise identified adverse environmental impacts

Based on the above the ESMP lists those management actions that are needed to ensure that undue or reasonably avoidable adverse impacts of the planning, construction and operations of the project are prevented and that the positive benefits of the project are enhanced or increased. It also gives responsibilities and will be used as a checklist to monitor compliance at the site.

2. CURRENT LAND USE

Currently the land is partly cleared but vacant, with few installed services of water supply and electricity. The site has an established brick making slap, no major infrastructural development has taken place on the land apart from site clearing and brick making slap. Pumba Bricks & Construction cc therefore wish to apply for a clearance certificate in order to comply with the environmental act's regulations. The site

The proposed development is not operational and the proponent have future plans to establish the following on the site:

1. Grocery shop/Butchery
2. Printing shop
3. Small garden
4. Garage
5. Car wash

3. ACCESSIBILITY TO SERVICES & COMMUNITY FACILITIES

The site is accessible and is accessed through the gravel road adjoining to the Trans-Caprivi highway. The access road can be seen in figure below. The site is situated on the outskirts of the town of Katima Mulilo in Liselo Communal area. It is situated close by other socio-economic infrastructure developments within the jurisdiction of the Liselo Communal area, such as Residential dwellings, SME business and other recreational development.



Figure 3: Access road to the project site

4. OWNERSHIP

In terms of the Communal Land Reform Act 5 of 2002, the proposed site is under the jurisdiction of the Mafwe Traditional Authority and Permission to Occupy was recommended by the Mafwe Traditional Authority

- The application for Leasehold was made to the Ministry of Land Reform (Zambezi Communal Land Board
- The site is not developed but the site area is already cleared
- The site has the Total size of about 1.5 hectares

5. POLICY AND LEGAL FRAMEWORK

Table 1: Legal framework governing the different project.

Legislation/Guideline/Policy	Applicable Clause/Policy	Comments
Forest Act No 27 Of 2004	The act affords protection to certain indigenous plant species and any intention to remove such species would have to be legalised through a permit from the forestry department: ministry of agriculture, water and forestry.	Protected trees species may not be removed without a permit. The following species that occur in the area are protected by forestry legislation Acacia erioloba Acacia sieberiana Colophorspermummopane Combretumimberbe Faidherbiaalbida Sclerocaryabirrea Ziziphismucronata
National Heritage Act No 27 Of 2004	Potential cultural and archaeological sites to be identified and protected/mitigated before development may continue.	Salambala conservancy needs to advise the operator on any important cultural site in the vicinity of the site.
International Treaties And Agreements		

Revised Sadc Shared Watercourses Systems Protocol	<p>Article 2: The utilisation of the resources of the shared watercourse systems shall include agricultural/domestic, Industrial, and navigational uses and should be in accordance with the principles contained in this protocol.</p> <p>Member states shall require any person intending to use the water of a shared watercourse system within their respective territories to first obtain a permit from the relevant authority within the state concerned. The permit shall be granted only after such state has determined that the intended discharge will not have a detrimental effect on the regime of the waste watercourse system.</p>	<p>Since water abstraction will be for domestic use a letter to obtain a permit needs to be submitted to MAWAF.</p> <p>Sustainable development principles should be implemented.</p> <p>Apply for permit for a wastewater treatment system.</p>
Convention On Biological Diversity (Cbd)	Namibia is obliged under international law to conserve its biodiversity (Banard ed., 1998)	Projects should refrain from causing any unnecessary damage to the country's biodiversity.
Legislation/Guideline/Policy	Applicable clause/policy	Comments
Convention to combat desertification	Namibia is bound to prevent excessive land degradation that may threaten livelihoods.	This is a general requirement to be considered in all projects.
Ramsar convention (1971)	Wetland conservation and we use of, recognising wetlands as ecosystems that are extremely important for biodiversity conservation and for the well-being of human communities.	Preservation of the chobe river as an important wetland system.

This section, in table format, describes the environmental framework of the project.

LEGISLATION/GUIDELINE/POLICY	APPLICABLE CLAUSE/POLICY	COMMENTS
Namibia 's Environmental Assessment policy (1995)	List of activities that require EA.	Tourism facilities need to be assessed in terms of the impact on the natural and social environmental and resources.
Communal Land Reform Act	List of activities that may not be undertaken without a clearance certificate: 6. tourism development activities	Conduct a EA in terms of the tourism development and submit to MET in order for a clearance certificate to be issued.
1994 White paper on tourism (MET 1994)	Tourism must provide direct benefits to local people and aid conservation.	Emphasis should be on local benefits from tourism.

1995 policy on wildlife, management, utilisation and tourism in communal area (MET 1995a)	To allow rural communities on state land to undertake tourism ventures and to enter into cooperative agreements with commercial tourism organisations to develop tourism activities on state land.	JV agreements with benefits to local communities should be negotiated between developers and local conservancies.
Inland fisheries resources act, 2003 and regulations	Promotion, sustainable utilisation and protection of inland fisheries resources. Restrictions by limiting number of nets, mesh, sizes, net length and damaging fishing methods.	A fishing licence need to be obtained from the regional office to engage in recreational fishing in any inland waters by means of any regulated fishing gear.
Communal land reform act (act no 5 of 2002)	Allocation of rights in respect of communal land – part 2-right of leasehold. A right to leasehold	Application for the right of leasehold in respect of communal land must be made in the prescribed manner to the CCLB. Right of leasehold granted for

6. DESCRIPTION OF THE PROPOSED PROJECT

6.1 Locality

The proposed brick making site is located \pm 5 kilometres south west of the town of Katima Mulilo, located in the Communal land of Liselo area under the traditional jurisdiction of Mafwe Traditional Authority. The site is located alongside the gravel road adjoining from the Trans-caprivi highway going to Nova Army Base. The gravel road is connecting to the Trans-Caprivi highway. The site is located in a dry savannah area, with no wet land and/or rivers in the area.

The project site is relatively dry and flat in nature with dominance of heavy sandy characterized by acacia shrubs, savannah grassland and silver terminalia wood forest. There are no natural water sources that would hinder disturbance to both livestock or wildlife water consumption on the site.

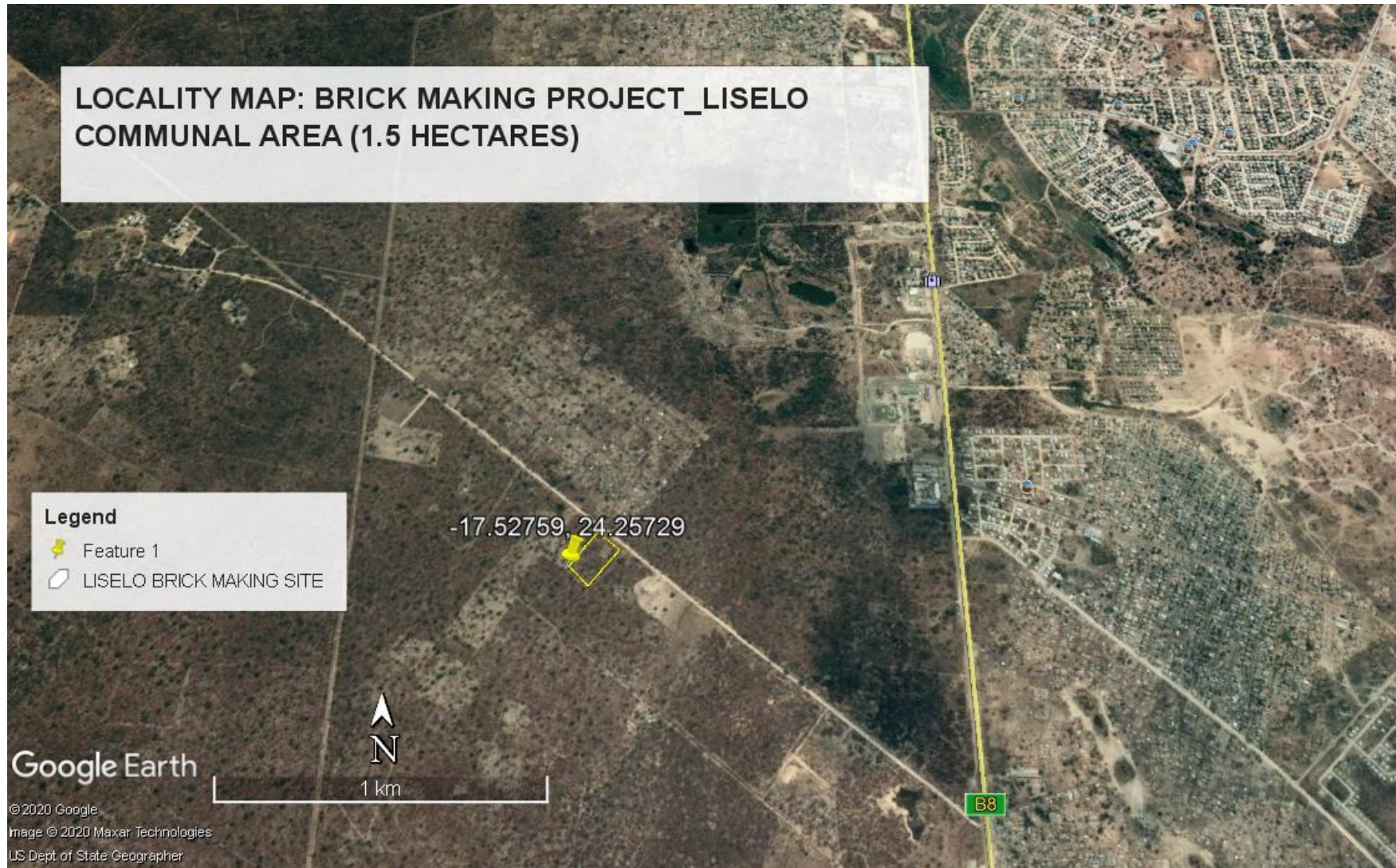


Figure 4: Project area locality map

6.2 Project Rationale

The site is ideally intended for the development of a brick making facility, since it is situated few kilometres to the main town of Katima Mulilo, with nearby businesses, and residential development, this project gives an important or vital economic importance and upliftment to the region and the communities in the Liselo area. The Zambezi Regional Poverty Profile (2004) points out that the Zambezi region is the second-poorest region after Ohangwena and in terms of the Human Poverty Index (HPI) published by the UNDP for 2000, the Zambezi (Caprivi) ranks as the poorest in the country. The region has an HPI of 36.0, which is much higher than the average of 24.7 for the country as the whole. Hence the proposed business can therefore uplift the livelihood of Liselo communities through provision of bricks to retailers or constructors, employment creation, enhance the vitality of the liselo area, promote infrastructure development, and benefit the surrounding communities by bringing long term quality of life for local people in Liselo area and the Zambezi region at large.

In a review on the Namibia's communal conservancies (NACSO, 2011) it is stated that both general businesses, hospitality, tourism have the potential to alleviate poor and sustain the livelihoods of local communities through empowerment and through increase in economic upliftment. However, these benefits can be significantly expanded through broader engagement by the private sector”.

7. ENVIRONMENTAL AND SOCIAL OVERVIEW OF THE AFFECTED ENVIRONMENT

7.1 Introduction

In the following sections the current biological, physical and socio-economic conditions of the study area are discussed and their sensitivities to change are considered

7.2 Climate

The climate of the area is fundamental; in determining the availability of water and also reveals much about its ecological sensitivity and resilience to change.

7.3 Topography and soils

The major feature of the Zambezi landscape is extensive forest, savannah sands with associated flood plains, channels and deposits which have resulted in producing six major landscapes. The site area represents two of these landscapes:

- Savannah woodland forest with associated grass
- Sandy soil

7.4 Surface and Ground water Hydrology

The site is dominated by heavy sandy and dry savannah and there is no availability of surface water in the area. At the same time, the area is not prone to flood, hence the underground water levels is uncertain and could only be predicted and/or estimated by the hydrological expertise for water sources.

The sensitivities associated with surface and groundwater features as well as the potential impacts the project may have on these features are contained in Table 2.

Table 2: Sensitivities and potential impacts related to surface and underground water

Environmental features	Description	Sensitivities	Potential Impacts of Project on feature
Zambezi river system	<ul style="list-style-type: none"> Relatively large river that holds water permanently 	<ul style="list-style-type: none"> The Zambezi river has real catchment area and is fed from outflows from the Angola river which drains a large area of Zambia. Slow flowing river Can change direction east or west depending on inflow from Kwando – Linyanti Shared water resource 	<ul style="list-style-type: none"> No Surface water pollution No water abstraction from Zambezi No Pollution as there river is situated kilometres away No Impact on wet land system
Groundwater hydrology	<ul style="list-style-type: none"> Underground water fairly abundant and flows in a south-easterly direction in a productive porous aquifer Water reserves fairly close to surface, between 25-65 m Water quality excellent (Mendelsohn et al 2002) 	<ul style="list-style-type: none"> Pollution 	<ul style="list-style-type: none"> Any affluent resulting from the development is likely to affect the resources in the long term No pressure on sustainability of water resources

7.5 Landscape characteristics

7.5.1 Vegetation

The site lies in the savanna and woodland vegetation (Kalahari woodland) Mendelsohn *et al.* (2002), where vegetation is dominated by tall tree species. The site has distinct communities of *Burkea-Terminalia* woodland (Hines, 1997). However, according to Lushetile (2009) this vegetation class has reduced species richness in comparison to other vegetation classes. Fig 5 captures the site structure.



Fig 5. The site is on an open woodland with a few tree species

The site comprised of disturbed area such as the existing settlement, the man-made road for access to other residential properties and therefore vegetation is in a disturbed state. The site does not have a fully functional ecosystem due to the disturbance by the said activities and road which has fragmented the landscape. Therefore, destruction of vegetation will be not on a pristine landscape. The landscape can be enhanced with re-forestation with desired species after construction to create micro-habitats.

A nested plot design was used to capture species occurring at the site. The results are captured below:

Table 3: List of vegetation species in the project surrounding area

Tree species	Protection status
Tree layer	
3 <i>Burkea africana</i> Hook.	Protected
11 <i>Terminalia sericea</i> Burch. ex DC.	None
1 <i>Strychnos spinosa</i> Lam.	Protected
1 <i>Philenoptera violacea</i> (Schinz) Schrire Rhus	Protected
1 <i>Piliostigma thonningii</i> (Schumach.) Milne	Protected
1 <i>Vachellia erioloba</i>	Protected
Shrub layer	
<i>Ochna pulchra</i> Hook.	Namibian Near-endemic
<i>Vachelia erioloba</i> E.Mey.	Protected
<i>Bauhinia petersiana</i>	Protected
<i>Ximenia caffra</i> Sond. var. <i>caffra</i> Zehneria <i>marlothii</i> (Cogn.) R. & A.Fern	None
<i>Terminalia sericea</i> Burch. ex DC.	None
<i>Opuntia ficus-indica</i>	None - Invasive species
Herbs	
<i>Annona stenophylla</i> Engl. & Diels ssp.	N/A
<i>Acrotome inflata</i> Benth.	
<i>Bauhinia petersiana</i> Bolle ssp. <i>petersiana</i>	
<i>Combretum collinum</i> Fresen. ssp. <i>collinum</i>	
Grass	
<i>Aristida adscensionis</i> L.	N/A
<i>Aristida stipitata</i> Hack. ssp. <i>Stipitata</i> ssp. <i>minuta</i>	
<i>Aristida meridionalis</i> Henrard	
<i>Cenchrus ciliaris</i> L.	
<i>Digitaria seriata</i> Stapf	
<i>Eragrostis rotifer</i> Rendle	
<i>Eragrostis porosa</i> Nees	
<i>Grewia flavescens</i> Juss. var. <i>flavescens</i>	
<i>Hermannia eenii</i> Baker f.	
<i>Heteropogon contortus</i> (L.) Roem. & Schult.	
<i>Hermestaedtia fleckii</i> (Schinz) Baker & C.B. Clarke	
<i>Indigofera flavicans</i> Baker	
<i>Kyllinga alba</i> Nees	
<i>Lonchocarpus nelsii</i> (Schinz) Heering	

<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh	
<i>Urochloa brachyura</i> (Hack.) Stapf	

Terminalia sericea was observed to be the dominant species at site. *sericea* can be invasive and its distribution is widespread. There is no protection for this species under current legislations. Wood from this species may be used as firewood after destructive activities on site. *Strychnos spinose* bears edible fruit and *Ochna Pulchra* makes beautiful ornamental trees. These can be uprooted and transplanted to a desirable position. *Opunti species* is a threat native vegetation and therefore should be destroyed immediately to avoid infestation of this alien species. The *Burkea africana* is a timber species. Trees of this species observed on the plot were all of less than 45cm in diameter, should a need arise for such trees to be removed the Directorate of Forestry should be informed. *B. africana* wood can be used for household items such as stool and pestles.

7.5.2 Birds

As a result of the unavailability of the lack of surface water on the site, the area or the proposed site does not have abundance of bird species. Birds are mostly confined by the river side of the mighty Zambezi River.

7.5.3 Wildlife

This area is situated few kilometres outside the town boundary of Katima Mulilo, the area does not have any wildlife species. There is only availability of few small livestock's that graze in the area during the wet seasons when the grazing land or pasture is good. Domestic livestock animals such as cattle and goats are some of the animals that can be observed in the area. Wild animals are mostly found in the wetlands of the East Zambezi region where they possess great value to the local communities in terms of Tourism attraction in the area.

Furthermore, due to the fact that the Liselo area is situated close to a populated town, the area where the proposed project is to be established does not fall under any conservancy as there are not bird or wildlife species in the area.

7.5.4 Agriculture

There is no any commercial and or subsistence agriculture taking place on or close by the proposed project area

7.6 Socio Economic Profile

Benefits and increased economic activities

In the nutshell and on the national level, the overall objectives for entrepreneurial businesses in the country, in line with the National NDP and vision 2030 objectives, among other are to help attain the national objectives, the overall goal of the National Economic growth & empowerment is to increase economic growth, reduction & eradication of poverty and sustain and increase food security, within the context of Namibia's fragile ecosystem.

- ✓ To create and sustain viable livelihood and employment opportunities in rural areas;
- ✓ improve the profitability of agriculture and increase investment in regions the country at large
- ✓ promote the sustainable utilization of the nation's land and other natural resources; and
- ✓ Contribute to balanced rural and regional development based on comparative advantage.

An annual contribution payment of N\$ 4800.00 will be paid by the proponent to the Mafwe Traditional Authority on an annual basis after the completion of the proposed brick making project. This will be a separate agreement between the traditional authority and the proponent. The proponent has agreed to pay an annual amount of N\$ 2500.00 (as part of his social responsibility) to the Liselo sub-khuta and community trust fund.

Furthermore, a leasehold rental fee will also per paid to the Zambezi Communal Land Board as per the communal Land Reform Act No.5 of 2002, in the account opened by the GRN through the Ministry of Land Reform.

A long-term mutual relationship between the proponent (Pumba Bricks & Construction cc) and Liselo community will be developed. Significant community empowerment such as training on employment and assistance for education finances will also be offered to the community.

8. DESCRIPTION OF THE PROJECT

8.1 Site Layout

The site is located about \pm 5 Kilometres from the boundary of the Katima Town Council (*see figure 1, Locality map*) and situated about 10 kilometres away from the mighty Zambezi river. The site is associated with Kalahari sandy, with the dominance of an open land savannah grassland, suitable for domestic animals or livestock grazing. The site is also situated close to some existing

development such as business establishments and residential properties as seen in the picture below;



Figure 6: Existing residential properties in the surrounding the project site

8.2 Construction and Operational Phases

The 1.5 hectare of land allocated for this envisaged brick making development is at the moment partly cleared and there are no large tree species on the site. It is a woodland forest land savannah area characterised by few trees. Based on this the proponent plans on starting with the brick making operations as soon as the Zambezi Land Board approves his Leasehold business application which shall be accompanied by an Environmental Clearance Certificate from the Ministry of Environment & Tourism.

Pumba Bricks & Construction cc intend on developing an eco-friendly brick making facility for business purpose which will comprise mainly of *sand, stones and cement*. **No sand mining will be**

conducted on the site as all sand will be purchased and be delivered by the sole supplier (WLD Construction Civils) as per the attached letter from the licensed sandy mining company.

8.3 Construction Phase Activities

- ✓ The project site has been prepared and installation of water line has been installed on the site. The water supply line is through Katima Linyanti Nam-water supply will be connected. The Katima-Linyanti Nam-water pipeline runs alongside the Trans-caprivi highway road, with subsidiary connections to nearby residential properties in the Liselo area. The picture below shows the water meter and tape water installed at the site.

Figure 7: Installed water services on project site

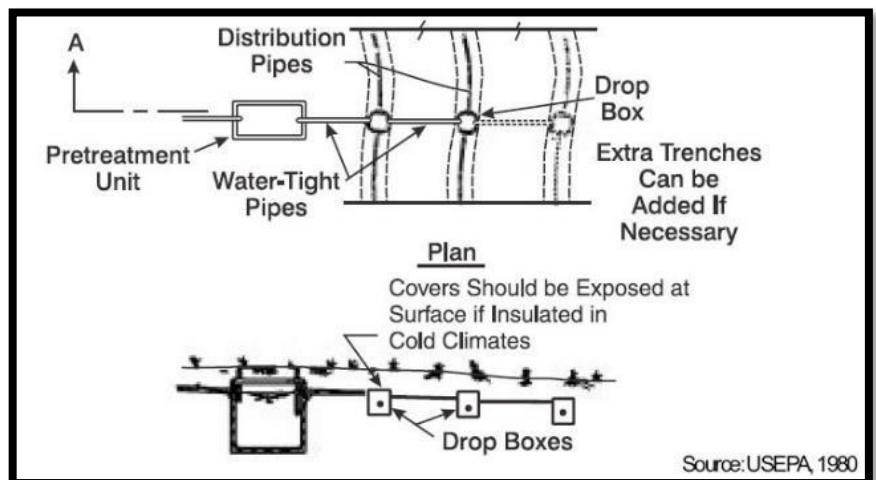


- ✓ In addition, a power supply will be installed during the construction phase, where power will be installed through connection to Namibian Nored power supply where the proponent is expected to pool extension from the existing and operational Rural Electrification powerline installed in the Liselo area. This will reduce connection costs.
- ✓ Currently the concrete slab where brick making activities will be executed is already established. The size of the concrete brick making slab is about 100square meter in diameter, see figure below.
- ✓ Other facilities planed for development on the site is
 - the workers resting shelters,

- Security guard room and production material store room (Such as cement bags, spads and other tools)
- (x2) ablution facilities for both male and female and with a shower.
- A finished brick store area and truck loading and parking bay



Figure 8: (x) 40 000 Litre septic tank to be installed



- ✓ The building material for the Security room will be made of concrete bricks and corrugated iron sheet with a window for ventilation. Whilst workers shelter will be constructed with corrugated iron sheets as roof and standing iron poles but shall not be enclosed. All building rubbles will be collected and transported to the dumping site by the proponent.
- ✓ During the construction of the project an estimate number of old workers \pm 13 unskilled (labourers) workers will continue with work. However, the number of workers shall or may increase as the business expand in the long run.



8.4 Operational activities

- ✓ During the operation phase of the brick making project, the same number of employees to a total of +-13 skilled and semi-skilled workers will be employed at the project.
- ✓ The liquid wastes generated from the ablution facilities from the operations of the project will be channelled to x 40 000 Litre septic tank, where applied chemicals will be applied to reduce and/or suppress the increase in the level of the wastes in the septic tank. Furthermore, the septic tank will be drained by the Katima Mulilo liquid waste and liquid waste will be disposed at designated sewer ponds.
- ✓ The solid wastes that will be generated from the operations of the brickmaking project will be collected in 240 litres wheel bins that will be placed within the project premises in portable black plastic bags, transported and disposed to the nearest and designated dumping site of Katima Town council situated about 10 kilometres from the project site.
- ✓ The proponent or developer (Pumba Bricks & Construction cc) will be responsible and accountable for managing and for disposing of solid wastes generated from the development in line with the environmental health policies and bylaws of Katima Mulilo town council,
- ✓ Continuous socio-economic services and assistance will be offered by the investor to the community of Liselo, depending on the necessity that will arise.

9. ASSOCIATED INFRASTRUCTURE

9.1 Water

Water supply is already installed on the site premises, connected through the Katima Mulilo-Linyanti water pipeline which is already functional and is under the auspices of the Ministry for Agriculture water and forestry. The pipeline runs adjacent to the Trans-Caprivi highway and is adjoined to supply the communities in the Liselo Communal area. The water is suitable for both human and livestock consumption.

9.2 Electrical Services

The owner of the proposed development who is also the proponent of the brick making facility will pay costs by extending power supply connection to the existing powerline that runs from Katima Mulilo to Linyanti and Sangwali under the administration of Rural Electrification program, where power supply to the proposed development will be connected. Hence power supply is in process to be installed at the project area. See picture below. However, all transformers installed under the Ministry of Works and Rural Water Supply are being maintained by CENORED Katima Mulilo.

9.3 Sewage Treatment and Disposal

The brick making project facility will contain a large 40 000 Litre septic tank which will be constructed with super small sized bricks to enforce its strength and compaction. The septic tank will be constructed about 2.5 meters in depth. It is estimated that the capacity of the septic tank can take about to 5 years for it to reach its fullest capacity. A liquid waste contraction chemical will be constantly applied inside the septic tank to help minimise septic tank to reach its full limit. However, once the septic tank is full, a liquid waste truck will be contracted or hired to empty the septic tank and dispose such wastes to the Katima Mulilo sewage ponds.

9.4 Solid Waste Disposal

Solid wastes that will be generated from the operations of the brickmaking project will be collected in 240 litres wheel bins that will placed within the project premises in portable black plastic bags, the solid wastes will be transported and disposed to the Katima Mulilo designated dumping site. The company's waste removal truck will be used to collect the solid wastes and disposed to the dumping site situated about 10 kilometres from the project site area.

Figure 10: Designated Katima Mulilo dumping site



9.5 Access road to the project site

The project area can be easily accessed through the gravel road (*as seen in the picture below*) adjoining from the Trans-caprivi highway from Katima Mulilo to Kongola. The gravel road is in a good state and is being frequently maintained by the Roads Authority (RA). There are other secondary man-made roads or cutlines which can be used to access the site and are connecting the site to other existing development establishments in the Liselo area. Based on the above statement there will be no new road network to be created for people to access the site.



Figure 11: Access gravel & man-made road (accessing the site)



10. STAKEHOLDER AND COMMUNITY CONSULTATIONS

Public participation forms an important component of the environmental Assessment process. It is defined by the Environmental Management Act (2007), as a 'process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to specific matters'.

As per the procedure of the Namibian environmental Act, 2007, Public participation notices were advertised on local notice board around Liselo area, Mafwe Traditional Authority and in two (x2) newspaper media, which is New Era and Confidante newspapers. Both adverts in the New Era and Confidante were advertised on 29th October & 12th November 2020 respectively. Also, the list of interested & affected parties stakeholder community meeting is hereby *attached as appendix*.

Communication with stakeholders about the proposed Brick making facility was facilitated through the following means: The stakeholders were identified in terms of relevance to the project and who could serve as a source of information

On the 15 December 2020 a public participation meeting was held between the investors (Pumba Bricks & Construction cc), stakeholders, the Traditional Authority, and members of the Liselo community at Liselo sub-khuta to discuss issues and concerns regarding the Brick making Project and also raised concerns and proposals to mitigate the problems. A total of 13 people attended the meeting (see attached attendance list dated 15 December 2020). The following key stakeholders were also invited to the public consultation meeting (***see Letters for invitation to I & APs***):

- Proponent
- Zambezi regional council
- Katima Mulilo Town Council
- Ministry of land reform
- Ministry of environment & tourism
- Ministry of Trade & Industrialization
- Ministry of forestry
- Ministry of Agri. Department of rural water supply
- Liselo sub-khuta & community members

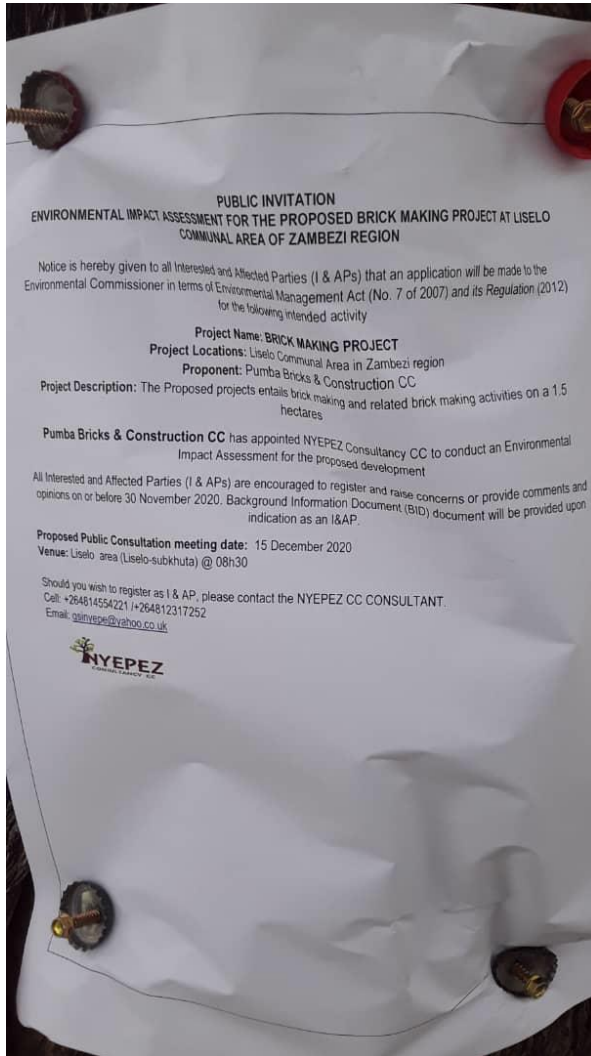


Figure 12: Local notices

A summary of the issues and concerns that were raised by the interested and affected parties is listed below. The purpose of presenting the issues raised by participants in this section is simply to:

- Ensure transparency regarding the concerns that have been expressed;
- Ensure that all issues raised are properly addressed in the EIA, EMP and mitigation measures proposed.

Issues dominated the discussions range from:

- Employment Creation
- Local community empowerment

11. IMPACT ASSESSMENT AND MITIGATION

11.1 Assessment of Impacts

The purpose of this section is to assess and identify the most prominent environmental impacts and provides possible mitigation measures that are expected from both the operational and the decommissioning for the activities of the Brick making project. The following component or section below summarizes some impacts identified, following the site visits that were undertaken at the site area and from other comments received from relevant stakeholders

- Biodiversity and ecosystem impact
- Fire
- Socio-economic impacts
- Health and safety impacts
- Cumulative impacts

These identified impacts will be assessed and evaluated in different phases of the development. By subjecting each of the potential impacts to the criteria stipulated above, it is possible to establish the significance of each impact prior to implementing mitigation measures and then after mitigation measures have been implemented. Detailed descriptions of management actions in terms of mitigation measures are contained in the accompanying EMP.

The process of accessing the significance of each of the possible impacts is contained in the above tables. It must be noted that the impacts described in these tables considers the nature of the potential impact before (pre) and after (post) mitigation as set out in the EMP.

Although the significance rating of the most of the impacts can be reduced considerably to a “low significance” by implementation proper mitigation measures the proponent should however understand that a “low significance” impact still exerts pressure on the environment and therefore the proponent should intend to go beyond the prescribed mitigation and management measures provided in this report by aiming to improve the remaining environment. There are specific policies and guidelines that address environmental issues related to the development. The policies and guidelines were referred to in the legal section.

Table 4: criteria used to describe impacts Description

Nature	Reviews the type of effect that the proposed activity will have on the relevant component of the environment and include “what will be affected and how”
Extent	Indicates whether the impact will be site specific: local (limit to within 15 km of the area); regional (limited to - 100 km radius); national (limited to the coastline of Namibia); or international (extending beyond Namibia’s borders)
Duration	Reviews the lifetime of the impact, as being short (days, <1 month), medium (months, <1 year), long (years, <10 years), or permanent (generations, or >10 years).
Intensity	Establishes whether the magnitude of the impact is destructive or innocuous and whether or not it exceeds set standards, and is described as none (no impact); low (where natural/social environmental functions and processes are negligibly affected); medium (where the environment continues to function but in a noticeably modified manner); or high (where environmental functions and processes are altered such that they temporarily or permanently cease and/or exceed legal standard/requirements).

Significance Rating	Criteria
Low	Where the impact will have a negligible influence on the environment and no modifications or mitigations are necessary for the given project description. This
Medium	Where the impact could have an influence on the environment, which will require modification of the project design and/or alternative mitigation. This would be allocated to impacts of moderate severity/magnitude, locally to regionally, and in the short term
High	Where the impact could have a significant influence on the environment and in the event of a negative impact the activities causing it, should not be permitted (i.e. there could be a no-go implication for the project, regardless of any possible mitigation). This would be allocated to impacts of high magnitude, locally for longer than a month, and/or of high magnitude regionally and beyond.

Probability	Considers the likelihood of the impact occurring and is described as improbable (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of prevention measures).
Degree of confidence in predictions	Is based on the availability of specialists knowledge and other information

The application of the above criteria to determine the significance of potential impact uses a balanced combination of duration, extent, and intensity/magnitude, modified by probability, cumulative effects, and confidence. Significance is described as follows.

The FAO guidelines for fields projects (FAO, 2012) will be used during the assessment.

Table 5: Environmental categories for FAO field projects

Environmental Category	Environmental and Social Impacts	Environmental Analysis or Assessment Required
Category A	Significant, or irreversible adverse impacts	Mandatory environmental impact assessment
Category B	Less significant adverse impacts that may be easily prevented or mitigated	Environmental analysis to identify more precisely potential negative impacts
Category C2	Minimal or no adverse impacts	No further environmental and/ or social analysis or assessment required

Based on the above FAO’s categories of field project analysis, the proposed development of Brick making project at Liselo falls under category B, where there is less significant adverse impacts that may be easily prevented or mitigated. Environmental analysis is required to analysis to identify more precisely potential negative impacts. The following box below specify the type of projects under Category B, which according to FAO (2012) do not require a full EIA but will require further deepening of environmental or social considerations, depending on the expected magnitude of risks. In many cases, the analysis would aim at gathering additional information in sufficient detail so as to be able to discuss concretely how risks could be addressed and minimized (and possibly eliminated) in the project design.

According to Pastakia (1998) the Rapid Environmental Assessment method can be used to assess projects related to the guesthouse development project and Pastakia’s method will be used during the assessment. The ranking formulas area calculated as follows;

$$A=A1 \times A2$$

$$B=B1 +B2+B3$$

$$\text{Environmental Classification (ES) } =A \times B$$

Table 6: Environmental Classification of Impacts according the Rapid Impact Assessment Method of Pastakia 1998

Environmental Classification (ES)	Class Value	Description of Class
108 to 72	5	Major positive change/impact
71 to 36	4	Significant positive change/impact
35 to 19	3	Moderate positive change/impact
10 to 18	2	Positive change/impact
1 to 9	1	Slight positive change/impact

0	0	No change/status quo/not applicable
-1 to -9	-1	Slight negative change/impact
-10 to -18	-2	Negative change/impact
-19 to -35	-3	Moderate negative change/impact
-36 to -71	-4	Significant negative change/impact
-72 to -108	-5	Major negative change/impact

Table 7: Assessment Criteria

Criteria	Score
Importance of condition (A1) –Assessed against the spatial boundaries of human interest it will affect	
important to national/international interests	4
important to regional/national interests	3
important to areas immediately outside the local condition	2
important only to the local condition	1
No importance.	0
Magnitude of changes /effects (A2) –measure of scale in terms of benefits of an impact or condition	
Major positive benefits	3
Significant improvement in the status quo	2
Improvement in status quo	1
No change in status quo	0
Negative change in the status quo	-1
Significant negative disbelief or change	-2
Major disbelief or change	-3
Permanence (B1) –defines whether the condition is permanent or temporary	
No change/not applicable	1
Reversible	2
Permanent	3
Cumulative (B3) –reflects whether the effects will be a single direct impact or will include cumulative impacts over time, or synergistic effect with other conditions. It is a means of judging the sustainability of the condition-not to be confused with the permanence criterion	
Light or No cumulative Charater /Not applicable	1
Modern Cumulative character	2
Strong Cumulative character	3

Table 8: Criterion for Impact Evaluation (Directorate of Environmental Affairs, 2008)

Risk Event	Description of the risk that may lead to an impact
Probability	<p>Refers to the probability that a specific impact will happen following a risk event</p> <p>Improbable (low likelihood)</p> <p>Probable (distinct possibility)</p> <p>Highly probable (most likely)</p> <p>Definite (impact will occur regardless of prevention measures)</p>
Confidence level	<p>The degree of confidence in the predictions based on the availability of information and specialist knowledge</p> <p>Low (based on the availability of specialist knowledge and other information)</p> <p>Medium (based on the availability of specialist knowledge and other information)</p> <p>High (based on the availability of specialist knowledge and other information)</p>
Significance (no mitigation)	<p>None (A concern or potential impact that, upon evaluation is found to have no significant impact to all)</p> <p>Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term, accordingly the impact is expected to require modification of the project design or alternative mitigation)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable)</p>
Mitigation	Description of possible mitigation measures
Significance (with mitigation)	<p>None (A concern or potential impact that, upon evaluation is found to have no significant impact to all)</p> <p>Low (any magnitude, impact will be localised and temporary. Accordingly the impact is not expected to require amendment to the project design)</p> <p>Medium (Impacts of moderate magnitude locally to regionally in the short term, accordingly the impact is expected to require modification of the project design or alternative mitigation)</p> <p>High (Impacts of high magnitude locally and in the long term and/or regionally and beyond. Accordingly the impact could have a 'no go' implication for the project unless mitigation or re-design is practically achievable)</p>

The following tables evaluate the identified impacts, both positive and negative of the farming project activities on the environment. This includes the social, economic and natural environment affected by the activities on the proposed site.

11.2 Operational Phase

Table 9: Operational Impact – Skills, Technology & Development

Natural Impact		Enhanced skills and technology transfer to the Zambezi region					
Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
3	3	3	1	1	3	5	15
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Low (If Namibian contractors or workers are not used)					
Mitigation / Enhancement		Pumba Brick & Construction cc must employ Namibian's where possible. Deviation from this practice should be justified appropriately					
Significance (with mitigation)		Medium					

Table 10: Operational Impact – Employment

Natural Impact		Employment in the Zambezi Region					
Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
2	1	2	2	1	2	5	10
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Low (If local Namibian are not employed)					
Mitigation / Enhancement		Where skills exist Local Namibian's must be employed. Deviation from this practice should be justified appropriately					
Significance (with mitigation)		Medium					

Table 11: Operational Impact – Healthy, Safety & Security

Natural Impact	The risks of accidents or injuries due to incorrect use of brick making facility equipment's and machinery
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Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
1	-2	2	2	1	-2	5	-10
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Medium					
Mitigation / Enhancement		<p>All health and safety standards specified in the labour Act should be complied with</p> <p>Ensure that all staff members are briefed about the potential risks of injuries onsite</p> <ul style="list-style-type: none"> • Qualified or skilled personnel to work with tools & machinery • Adhere to the health and safety regulations pertaining to personal protective clothing, first aid kits being available on the farm • Selective personnel to be trained in first aid use. The contact details of all emergency services should be readily available • Equipment's that will be locked away on the farm must be placed in such a way that does not encourage criminal activities • Access to the farm should be always be strictly controlled 					
Significance (with mitigation)		Low					

Table 12: Operational Impact – Fire

Natural Impact		Outbreaks of uncontrolled fire. Open fires used for cooking or for heat may spread to the nearby forest					
Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
3	-3	2	2	1	-6	5	-30
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Medium					
Mitigation / Enhancement		Open fires should not be allowed at the brick making site or nearby the residential development					
Significance (with mitigation)		Medium					

Table 13: Operational Impact – Waste production

Natural Impact		Any waste which can include hazardous waste, such as hydrocarbons or domestic waste					
Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
1	-1	2	2	2	-1	6	-6
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Medium					

Mitigation / Enhancement	All waste produced on the Brick making site be removed and disposed of at a recognised or designated disposal site (the Katima Mulilo designated dumping site is available where wastes generated from the project will be disposed)
Significance (with mitigation)	Low

Table 14: Operational Impact – Ecosystem and Biodiversity Impact

Natural Impact		The impact on the ecological environment from Brick making operation processes					
Importance of condition (A1)	Magnitude of change /effects (A2)	Permanence (B1)	Reversibility (B2)	Cumulative (B3)	A	B	ES
4	-2	3	3	3	-8	8	-64
Probability		Probable					
Degree of confidence in predictions		High					
Significance (without mitigation)		Medium					
Mitigation / Enhancement		<ul style="list-style-type: none"> The Brick making project is a crucial project on a 1.5 hectare and will consider to leave out few vegetation (trees & shrubs) at the site which has a high conservation Value and diversity. Restore the area as the close of the project as possible to its original state immediately after the project closer 					
Significance (with mitigation)		Low					

As depicted in the tables above, impacts related to the operational phase are expected to mostly be of medium significance but can mostly be mitigated to have a low significance. The extent of the impacts is mostly of low likelihood. An Environmental Management Plan (EMP) will ensure that the impacts of the operational phase are minimised and include measures to reduce the identified impacts during the operation of the Brick making project activities while ensuring that the local environment is rehabilitated and employees working on the brick making facility are suitably protected to avoid accidents and injuries.