

PONGOLA MUNICIPALITY

NDALINI RURAL HOUSING PROJECT PRELIMINARY ENVIRONMENTAL REPORT

Prepared for



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SECTION 1: INTRODUCTION AND BACKGROUND

1.1 INTRODUCTION

The proposed Ndalini Rural Housing (in Ward 4 of the Pongola Local Municipality) development is intended to be an in-situ upgrade of existing residential structures by construction of a standardized 40m² government subsidized low income houses and VIP toilets (in some cases) within the compound of each qualified beneficiary. Often, one house is built per household. This type of developments, are usually not expected to follow a formal settlement layout plan as the new houses are put in the houses where they are currently located. No infrastructure development such as roads are expected.

Nature and Development Group of Africa was appointed to undertake an environmental investigation and to prepare an environmental report as part of the overall feasibility assessment to be submitted to the KZN Department of Human Settlement for project approval purposes. This report provides results, conclusions, and recommendations of the preliminary environmental investigations that was undertaken. The report is based on field investigation, assessment of potential issues, and verification of relevant environmental data bases. The content of this report is tailored to meet the environmental assessment requirements of the Department of Human Settlements and provides sufficient information for decision making regarding compliance to regulatory environmental requirements and the decision making needs of the housing development.

1.2 PROJECT BACKGROUND

Housing development is a prioritized development programme of the Pongola Municipality in fulfillment of the broader National Human Settlement and Service Delivery Programme. In order to improve settlements and provide households with formal housing, the municipality proposes to provide more suitable housing in the Ndalini community.

1.3 OBJECTIVES OF THIS ENVIRONMENTAL SCOPING

The principal objective of this environmental investigation is to identify any sensitive environments (biophysical or socio-cultural) within the project area and advice on the implications that these may have for the proposed development. The results of this environmental analysis are to include:

- Clear indications of whether or not there are significant physical, socio-cultural and legal barriers that will merit a 'no development' option;

- Clear indications of any significant issues relating to the project and whether or not any further studies are recommended and what such studies should entail;
- Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.
- What legal barriers or liabilities are associated with the project and what processes must be followed to fulfill such legal requirements

1.4 RELEVANT LEGISLATION AND REGULATORY REQUIREMENTS

There are a number of legal and regulatory provisions, which are relevance to the Ndalini Rural Housing Project, particularly those that address issues relating to Health and Safety, limited development areas, and identified activities. The Acts and Regulations described below have environmental requirements that bind the municipality to uphold all environmental safety considerations under the relevant sections of the various Acts during the planning and implementation processes of this project. For example, the requirements of the National Environmental Management Act declares that no person shall cause an activity identified in terms of the regulations GNR 38282 of December 2014 to be undertaken unless authorization is obtained from the relevant decision making authority.

Relevant provisions of these Acts were therefore considered during the scoping process so as to ensure that bottlenecks are eliminated at the implementation stage of the project. These regulatory requirements are briefly described below:

1.4.1 National Environmental Management Act 107 of 1998

The objective of this Act is to provide for the conservation of natural resources by maintaining the production potential of land, combating and preventing erosion, preventing the weakening or destruction of water resources, protecting natural vegetation, and preventing and/or combating invader plants and weeds. The planning and implementation processes of the proposed Ndalini Rural Housing Project therefore need to take cognisance of relevant provisions of this Act.

Also relevant to this development are related Acts of NEMA including the National Environmental Management Biodiversity Act and the National Environmental Management Biodiversity Act.

1.4.2 Occupational Health and Safety Act of 1993

The specific requirements under this Act that are relevant to the Ndalini Housing Project, are the regulations on Major Hazardous Installations (MHI) and their potential health and safety impacts. Section 9 of the MHI regulation, which came into force in 1999, requires that where practicable the local authority shall prevent any development adjacent to an installation that has been declared a major hazardous installation.

This Act Also bears relevance to the National Environmental Management Act, which requires proponents of development to ensure a 'risk averse' approach where there is adequate information that a given development is associated with potential for health and safety risks to beneficiary and neighbouring communities. Where a given development involve the settlement of communities, as in the case of the Ndalini project, the requirements of this Act need to be carefully and adequately integrated in the settlement planning process.

1.4.3 Spatial Planning and Landuse Management Act (SPLUMA)

The above Act was established to facilitate the integration of strategic planning initiatives in all landuse activities. However, enshrined in this Act is the provision that developers are to ensure that adequate consideration is given to impacts and management of the impacts of the development on both the receiving and beneficiary environment.

1.4.4 KwaZulu Natal Heritage Act and the National Heritage Resources Act

Informal settlements in many instances are areas where cultural resources such as burial sites are located. It is also possible that other heritage materials such as archaeological materials may be found in these informal settlements. Thus in the process of formalising informal settlements, it is always expedient to consider the legal requirements of identifying and handling cultural, historical or religious materials and all permit requirements associated with heritage resources.

SECTION 2: DESCRIPTION OF ENVIRONMENTAL CHARACTERISTICS OF THE PROJECT AREA

2.1 CHARACTERISTICS OF THE EXISTING ENVIRONMENT

2.1.1 Location of the Project

The project area is located within what could be described as a typical rural environment at the northwestern part of the town of Pongola in Ward 4 of the Pongola Local Municipality. As a typical rural settlement, Ndalini has a scattered settlement pattern and covers most of the northern half of Ward 4. Map 1 shows the locality of the project area within Ward 4 of the Pongola Municipality.

2.1.2 Physical and Landscape Characteristics

The settlement is located on a rather rugged terrain consisting of a series or clusters of hills interspersed by sharp and deeply incised valleys especially within the southern half of the Ward (see topography and slope characteristics in Maps 2a and 2b). The hill-tops where most of the settlement is located is flatter. Generally, the areas towards the east including the valley bottoms are gentler.

Although slope appears to vary in the project area, the predominant slope category is estimated to be between 1:3 and 1:5 at the south becoming gentler to the north. The rugged nature of the broader terrain has given rise to a series of drainage lines many of which forms part of the Pongola River system.

2.1.3 Ecological Characteristics

The area is dominated by two major vegetation types according to Mucina and Rutherford 2006 namely the Northern Zululand Sourveld which occupies the northern half of the area, and the Ithala Quartzite Sourveld which occupies most of the southern half of the project area (Map 3a). Map 3b indicates that portions of the Northern Zululand Sourveld vegetation type have been modified as a result of the clusters of rural settlements. Most areas at the southern half of the area has not been transformed due to limited settlement. The majority of the vegetation within the project areas however remain untransformed as is typical of most rural areas.

2.1.4 Hydrological Characteristics

The character of the terrain within and around the project area has given rise to a reticulated network of drainage lines many of which are drained by tributaries which form part of the Pongola River catchment system (Map 4). Due to the highly rugged terrain and deeply incised valleys, wetlands of significance are uncommon in the area.

2.1.5 Current and Potential Land-uses

Investigations indicate that the project site is surrounded predominantly by relatively untransformed bushland and grassland. Subsistence agriculture occurs around homesteads a relatively prominent land use in the project area implying that livelihood is largely derived from household farming activities. Map 5a shows the areas that are currently under crop cultivation and general land uses in the area. Other typical rural based land uses such as forestry and sugarcane farming (Map 5b) are rather minimal operations.

The relatively untransformed character of the area lends itself to potential land uses such as conservation and ecotourism. It is also realised that the agricultural potential of the area is described as restricted potential in the northern half to low in the southern half due to the rugged nature of the terrain (Map 6). Agricultural considerations for the area may be limited to extensive production due to land based limitations. At this stage, no other land development proposals are known for the area.

Cognisance must be taken of the mining activity that occurs at the south western side of Rosendale within the north-eastern part of the project area.

2.1.6 Proximity to Major Hazardous Installations (MHI)

Assessment of the project area indicates that there are no known major hazardous installations of industrial nature within a reasonable range of the area. However, the indirect mining effects of the mine in the vicinity of the project area could be hazardous to the residents in close proximity to the mine.

2.1.7 Existing Infrastructure and Services

The settlement consists of clusters of rural residential structures interspersed by large expanses of vegetation and drainage lines. There are a number of primary schools but only one secondary school and one health center within the boundary of the project

area. Roads consist of untarred gravel poorly distributed in the project area. Since this settlement is informal it has limited social services which may not entirely meet the needs of population size.

2.1.8 Current and Possible Levels of Pollution

Site investigations indicate that, litter is limited and observed waste is mainly domestic waste materials of both degradable and non-degradable character. Human waste disposal in the Ndalini community is mainly by pit latrines and VIP toilets. Should the community not be formalized, future pollution levels is likely rise and could be a source of health hazard to the community. Formalising the areas with improved road network will pave the way to improving upon the current hygiene situation in the community.

SECTION 3: POTENTIAL ENVIRONMENTAL ISSUES

3.1 POTENTIAL ENVIRONMENTAL ISSUES RELATING TO THE BIOPHYSICAL ENVIRONMENT

3.1.1 Landscape Issues

Majority of the existing buildings are located on slopes that are within the permissible gentler than 1:3 range of slope for settlement purposes. Due to the fact that majority of the area is located on a slope it is recommended that geotechnical investigation be conducted during detail planning stage of the housing development process.

3.1.2 Ecological Issues

Being and existing informal settlement, vegetation in the area is highly degraded with indications of significant alien plant infestation. Few trees are found in the areas that have already being settled. However, the fringes of the drainage lines have maintained a relatively denser vegetation cover with few indigenous tree species. Since this vegetation act as protection against erosion, the planning process of this development should consider a buffer large enough to ensure the protection along the drainage lines.

It is further noted that the vegetation in the area is near endemic and therefore requires protection against undue disturbances. In the case of this development it is noted that the potential impacts on the vegetation is likely to be low since activities are expected to occur within homesteads where transformation has already occurred.

3.1.3 Hydrological Issues

It should be noted that all drainage lines are important environments that require protection especially in the current state of water crises in the country. It is noted however that, there are no households living within or close to any river or wetland areas along the drainage lines in the project area. It should be stressed that the 1:100 years floodlines for major rivers need to be established and the development kept outside of floodline limits.

3.1.4 Land use Issues

Current land use in the area is predominantly settlement. There will be very little change of land use from the current system due to the proposed development. Additionally, the

proposed development will not significantly affect surrounding land uses. However, the community relies largely on subsistence agriculture and vegetable gardening as a main or supplementary source of household income. The planning should integrate the current agricultural practices into the general settlement planning process. Further, implementation of the project should not disrupt or interfere with the current agricultural activities taking place in the area.

3.1.5 Health and safety issues from major hazardous installations

The proposed project area is not in close proximity to any industry classified as a major hazardous installation. Thus health and safety issues are likely to be insignificant as far as this development is concerned. However, the activities of the mine located in close proximity of the communities and its related risks must be taken into consideration in the planning process.

3.1.6 Pollution and sanitation issues

3.1.6.1 Sanitation

Current levels of pollution and sanitation pose limited health risks to the community. However, inadequate stormwater drainage systems coupled with a potentially high surface water runoff in the area, could result in water pollution and contamination risks in the area. Given that impacts on life support systems (such as water) at a given point is propagated over long distances, water contamination within the community could be a source of severe health risks for downstream users should the contaminants reach the Pongola River.

3.1.6.2 Sewage

The management of pit latrines involves relocation of the pit once existing ones are full and is associated with pollution potential of both ground and surface water systems. Should pit latrines be used, such toilets should be carefully positioned so as to avoid contamination of natural water systems. Since there are no conventional waste treatment facilities in the area, the VIP toilets as an alternative sanitation system must be planned in such a way that water systems in the area is contaminated.

3.1.6.3 Noise levels

It is likely that there would be increase in the level of noise in the project area during construction activities. This may be a significant nuisance to the more formalized settlements around the project area. Additionally, generation of excessive dust may be a source of pollution in the area and it's surrounding. These pollutants and period of pollution may be temporal and limited to the duration of construction activities and period only.

3.1 SOCIAL COSTS OF THE PROPOSED DEVELOPMENT

- The social cost of the proposed development is low. The benefits that would be derived from the project by far outweigh the negative impacts.
- Perceptions obtained through survey indicate the community fully supports the project

3.2 SUSTAINABILITY OF THE DEVELOPMENT

- Each beneficiary household would take responsibility for the maintenance of the residential infrastructure. However, owing to acute unemployment and low income levels, regular payment for services may be burdensome to the community. Thus the nature and quantity of services provided should be commensurate with what the community can afford to pay for.

SECTION 4 CONCLUSIONS AND RECOMMENDATIONS

This environmental analysis is expected to provide the following answers:

- Whether or not there are significant physical, socio-cultural and legal barriers that will merit a no development option;
- Whether there are any significant issues relating to the project
- Whether or not any further studies are recommended and what such studies should entail;
- Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.

The environmental investigations conclude as follows:

- **Are there any significant biophysical, socio-cultural and legal barriers that will merit a no development option;**

On the above subject, this environmental assessment concludes that:

- ☞ The numerous drainage lines in the project area are sensitive environments that may be affected by the development
- ☞ These sensitive areas could also adversely affect the development since they pose flood risks to the community
- ☞ However, the sensitive sites within the project area could be readily identified and delineated so that both the natural and social environments are protected.
- ☞ Since mitigation is readily possible, the presence of sensitive sites should not result in a 'no development' option.

- **Are there any significant environmental issues relating to the project**

On the basis of this investigation, it is concluded that there are no significant environmental issues related to the proposed development.

- **Whether any identified environmental limitations can be mitigated and what the mitigation recommendations are.**

- ☞ This preliminary assessment suggests that potential impacts currently identified can be appropriately and effectively mitigated. These impacts relate mainly to the drainage lines in the Ward. The mitigation suggested is that, the floodline in the sites identified. Construction of houses in the 1:100 year floodline must be

avoided at all cost. Any residential structure within in the 1:50 year floodline must be advised to relocate to safer grounds and any in the 1:100 year should not be serviced or included in this development. It is also necessary to ensure that adequate plans are established towards risk averse measures in the event of floods in the 1:50 years flood area.

- **Are there any further studies recommended and what such studies should entail**

- ☞ This assessment did not suggest that there is the need for further specialist studies.
- ☞ Furthermore, a geotechnical assessment is required to ensure slope and site stability

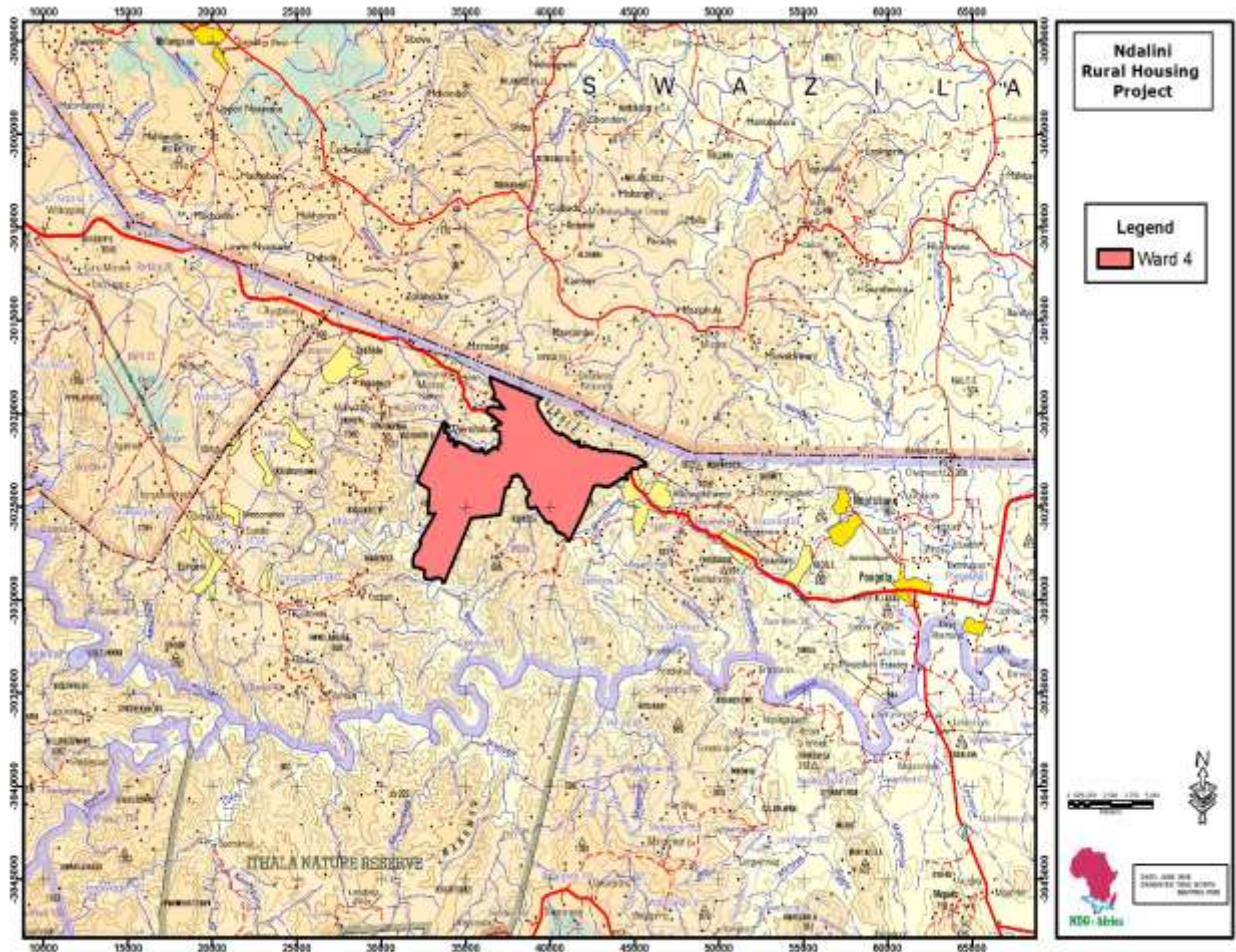
- **What legal barriers or liabilities are associated with the project and what processes must be followed to fulfill such legal requirements**

Rural housing projects by their very nature are low impact developments especially on biodiversity and hydrology, for the reasons that they do not involve any other infrastructure development, and that they are undertaken within existing homesteads where land transformation has largely already occurred. The following key development considerations are made in all rural housing planning processes including the development under consideration:

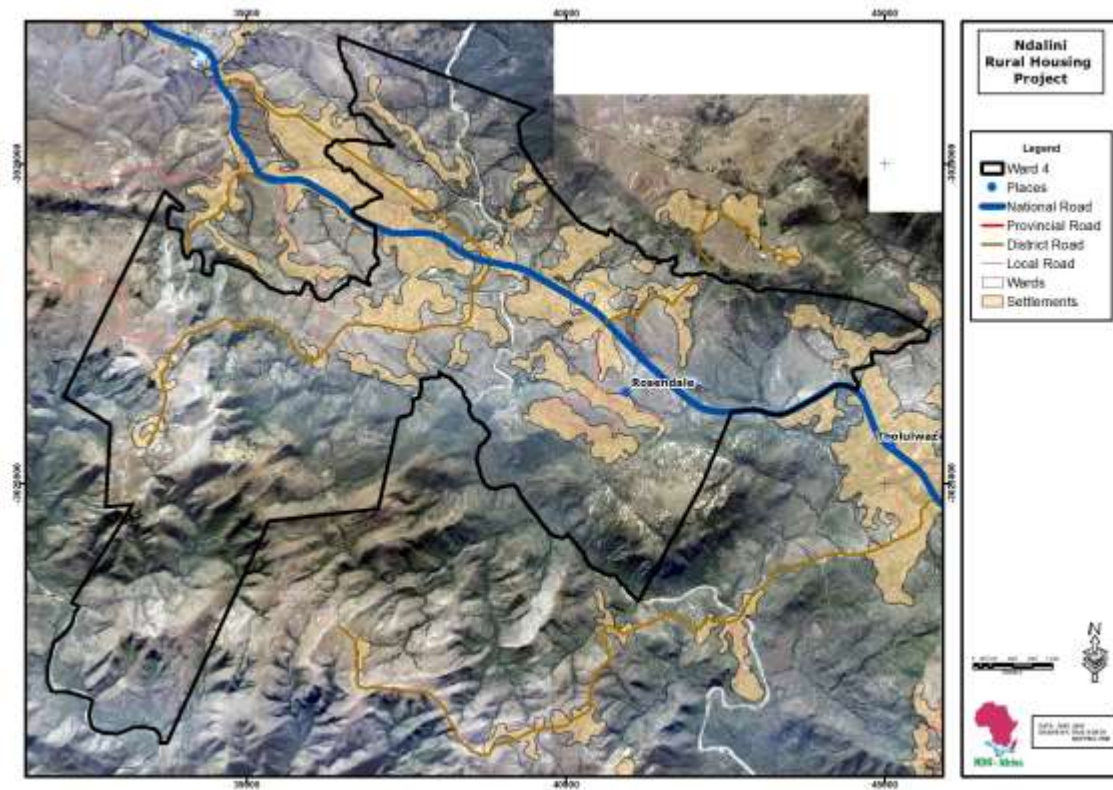
- No development occurs outside of an existing Umuzi (household compound)
 - No development occurs on land steeper than the prescribed 1:3 slope
 - No development occurs within the 1:100 years floodline
 - Most developments already have VIP toilets since the provision of sanitation is a district function. Where VIP is provided as part of a housing project, it is invariably a replacement of an existing pit latrine, with a better sanitation facility, at a more suitable location where necessary;
 - No access roads are constructed since each target Umuzi, invariably already has access.
- ☞ Like in all rural housing developments, the Ndalini housing project is not expected to follow a formal settlement layout plan. Instead, houses will be constructed within existing homesteads where invariably, significant disturbances to vegetation in particular had already occurred. It is understood that one house will constructed per household.

Given these principles and the very nature of the Ndalini rural housing project, the project is largely a low impact development and does not appear to be limited by any legislative requirement within the EIA regulations. However, other planning and development requirements need to be investigated as the case may be and compliance to such legal requirements adhered to.

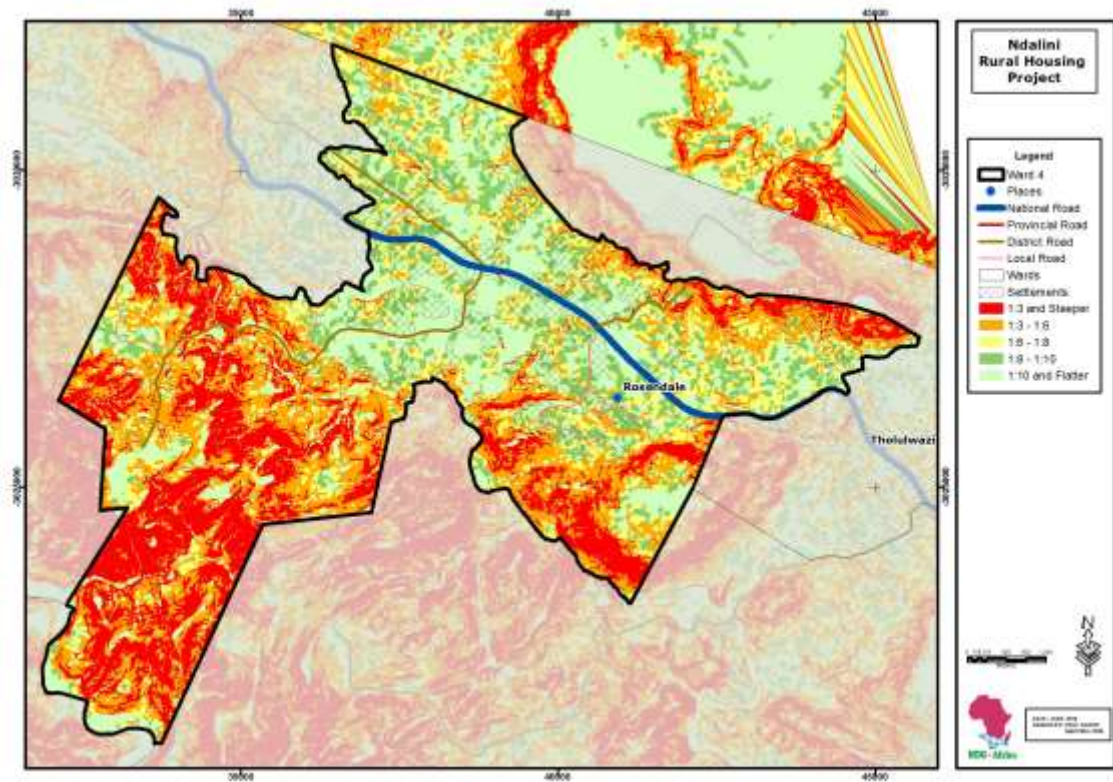
MAP 1: LOCALITY MAP



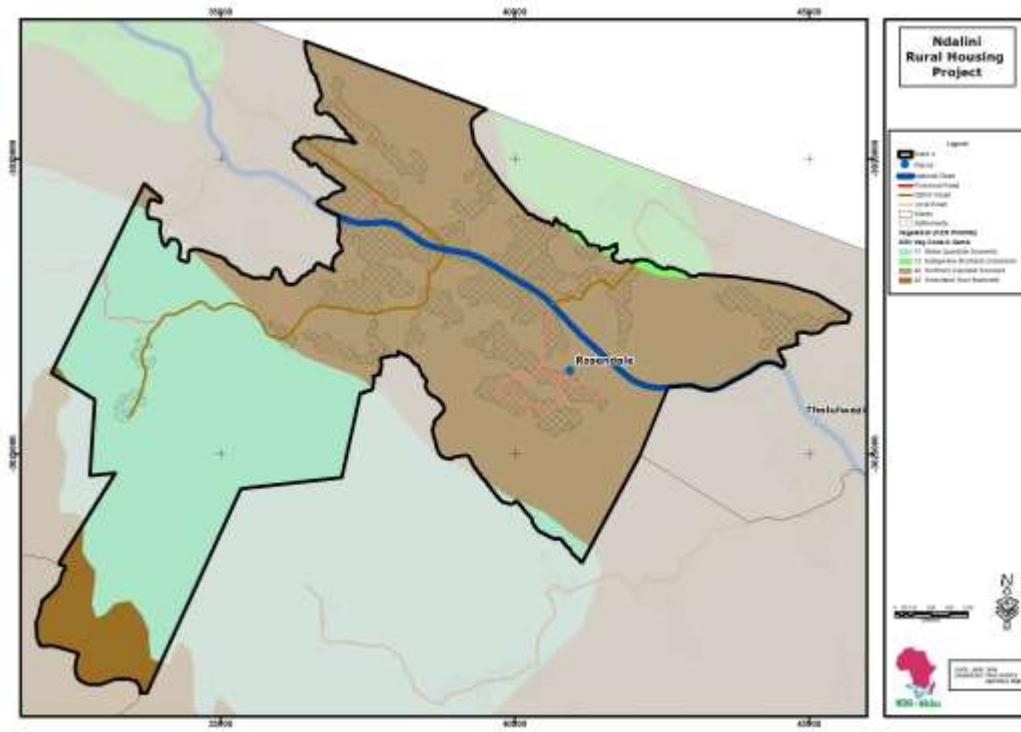
MAP 2a: TOPOGRAPHICAL CHARACTERISTICS



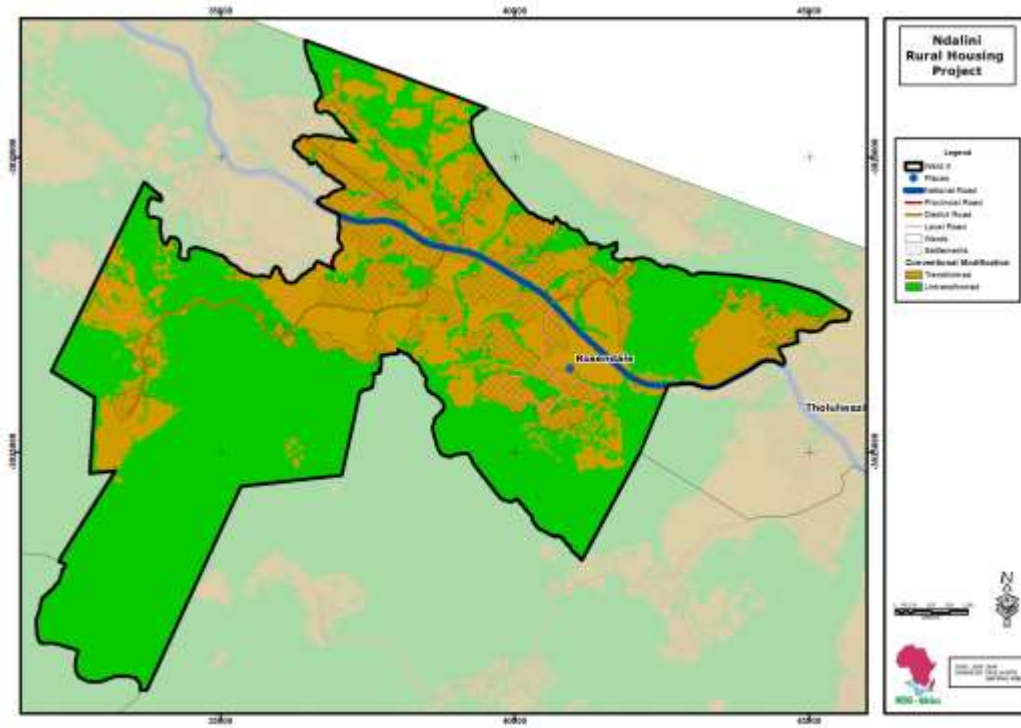
MAP 2b: SLOPE CHARACTERISTICS



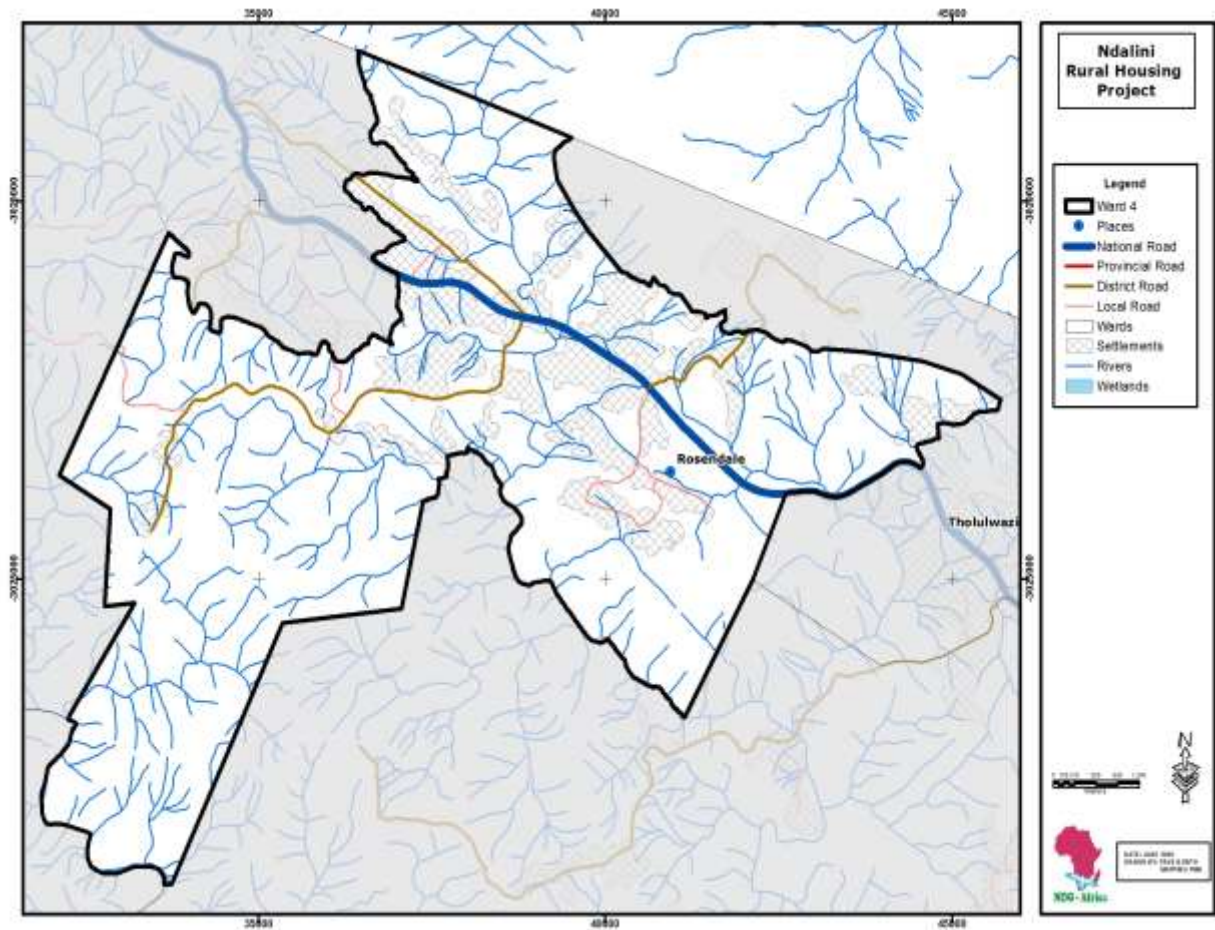
MAP 3a: VEGETATION OF THE PROJECT AREA



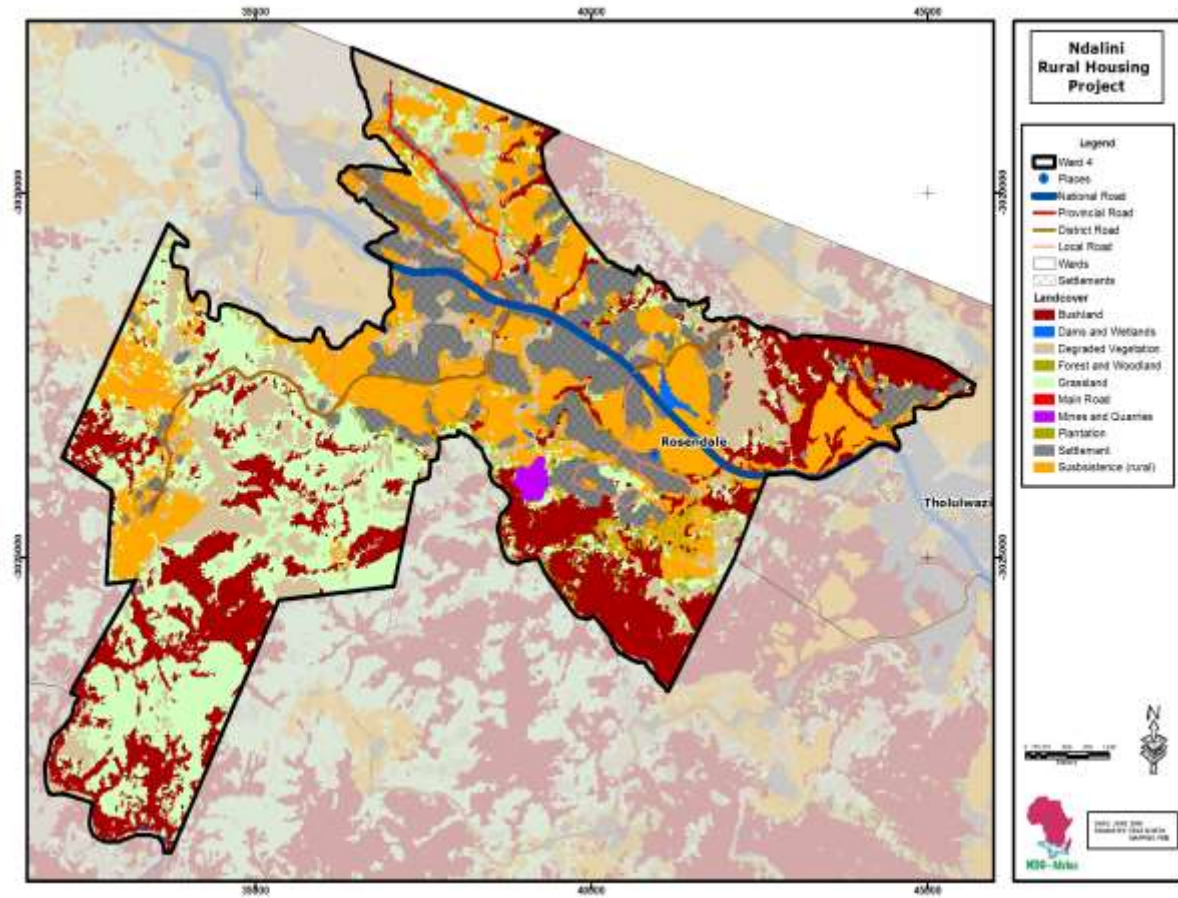
MAP 3b: MODIFIED AREAS DUE TO SETTLEMENTS



MAP 4: DRAINAGE SYSTEM IN THE PROJECT AREA



MAP 5: CROP FARMING AND OTHER LANDUSES



MAP 6: AGRICULTURAL POTENTIAL OF THE PROJECT AREA

