

**SOMSHOEK AND ESIKOKO RURAL**  
**SUBSIDISED HOUSING DEVELOPMENT**

**PRELIMINARY ENVIRONMENTAL ASSESSMENT**



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# 1 INTRODUCTION

## 1.1 PROJECT BACKGROUND

The Indaka Local Municipality has, through its IDP process, and extensive consultation with respective beneficiary communities residing within the Indaka Local Municipality (LM), identified the need to provide low cost rural subsidised housing throughout its entire area of jurisdiction. This process was initiated as a means to address the municipality's predominantly traditional/informal housing profile, and in doing so improve the living conditions and quality of life of its rural communities. The provision and implementation of the rural subsidised housing projects on Ingonyama Trust Land will occur in accordance with the terms of the Rural Housing Subsidy Scheme (as described in Chapter 11 of the National Housing Code). The proposed Somshoek and Esikoko Rural Subsidised Housing Project is aimed at providing suitable housing to beneficiaries residing a portion of Ward 5 and a very small portion of ward 8 of the Indaka Local Municipality. The project area includes land falling under the rule of the Sithole, Mthembu and Ingwe Traditional Authorities which make-up portions of Wards 4, 7, 9 and 10. Even though small portions of Wards 8 and 10 form part of the project area, these portions are vacant with no residents and will be omitted from the socio-economic analysis of the project area. The socio-economic analysis will thus only focus on the Ward portions with residents to determine the current status quo of the project area. The project shall be titled and referred to as the "Somshoek and Esikoko Rural Housing Project/ Project Area" for the purpose of easy reference in the report writing.

All rural subsidised housing development projects require that a Preliminary Environmental Assessment study be conducted, as part of the initial rural housing application. This document provides a preliminary environmental assessment of the project area as part of the approval phase of the proposed rural housing project. The report is based on a combination of available desktop data sources and the findings of a recent site inspection conducted across the project area. This assessment provides a summarized overview of key socio-economic, infrastructural and environmental aspects that will have to be considered in the implementation of the proposed subsidized housing project.

While the exact nature of the housing project in terms of the application of the subsidies and the location of individual beneficiaries within the study area has not yet been specified, it is known that

the proposed Rural Subsidised Housing project will result in the construction of approximately 1 000 new top structures within the project area, and will therefore service approximately 1000 beneficiaries and their associated families. This document thus provides a preliminary overview of factors that are relevant to the broader study area, while taking into account the existing settlement pattern and distribution.

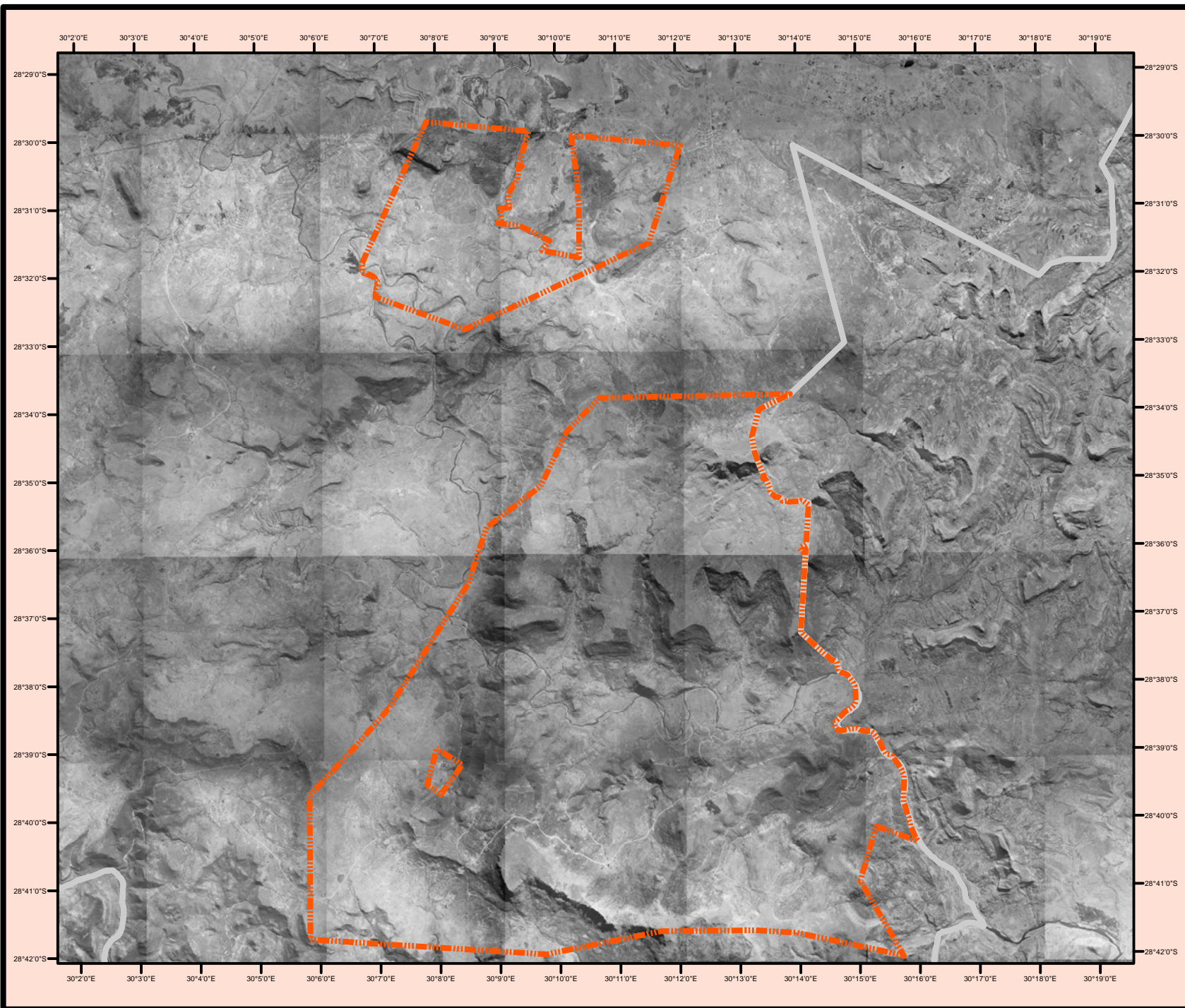
According to Chapter 11 of the National Housing Code, rural housing subsidies may be used for any purposes which, in the discretion of the Housing Board, amount to housing purposes. Without limiting the discretion of any particular Housing Board, the following purposes may be regarded as housing purposes:

- The provision of sanitation facilities;
- The provision of roads and stormwater drains within the boundaries of any particular settlement;
- The provision of water;
- The construction or upgrading of dwellings;
- The purchase of building materials in order to enable a beneficiary himself or herself to construct or upgrade a dwelling.

## 1.2 SITE DESCRIPTION

The project area falls within the jurisdiction of the Indaka Local Municipality, which is one of five local municipalities making up the Uthukela District Municipality of north-eastern KwaZulu-Natal. The total extend of the project area is approximately 19 419.8 Ha and is situated in relatively mountainous areas, most of which still hold pristine natural character despite being inhabited by rural settlements of the various traditional areas. The settlements are characterised by relatively poor communities and backlog of infrastructure provision (access roads, water supply, sewers, power grids, telecommunications etc.).

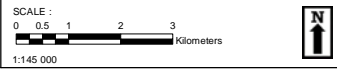
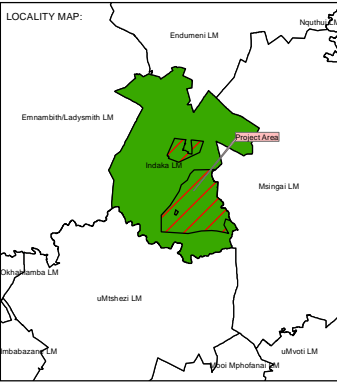
The Somshoek and Esikoko project area accounts for approximately 20% of Indaka Municipal land. The total population of the Indaka Local Municipality, as recorded in the Census 2011 is estimated at 103 116 persons while the overall population of the Somshoek and Esikoko Rural Housing project area is approximately 21 361 persons which resides in approximately 3 902 households within the project area. The location of the project area, relative to the Indaka LM, is depicted in the attached thematic map.



# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### PROJECT AREA




DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (Lc31)

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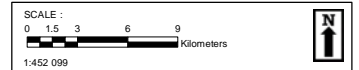
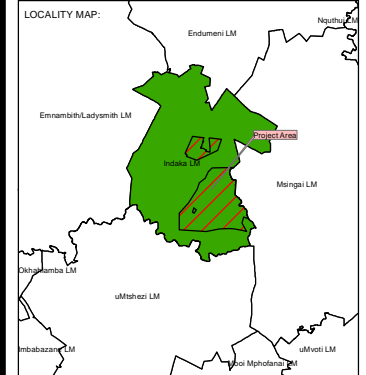
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# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### LOCALITY PLAN



DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (L031)

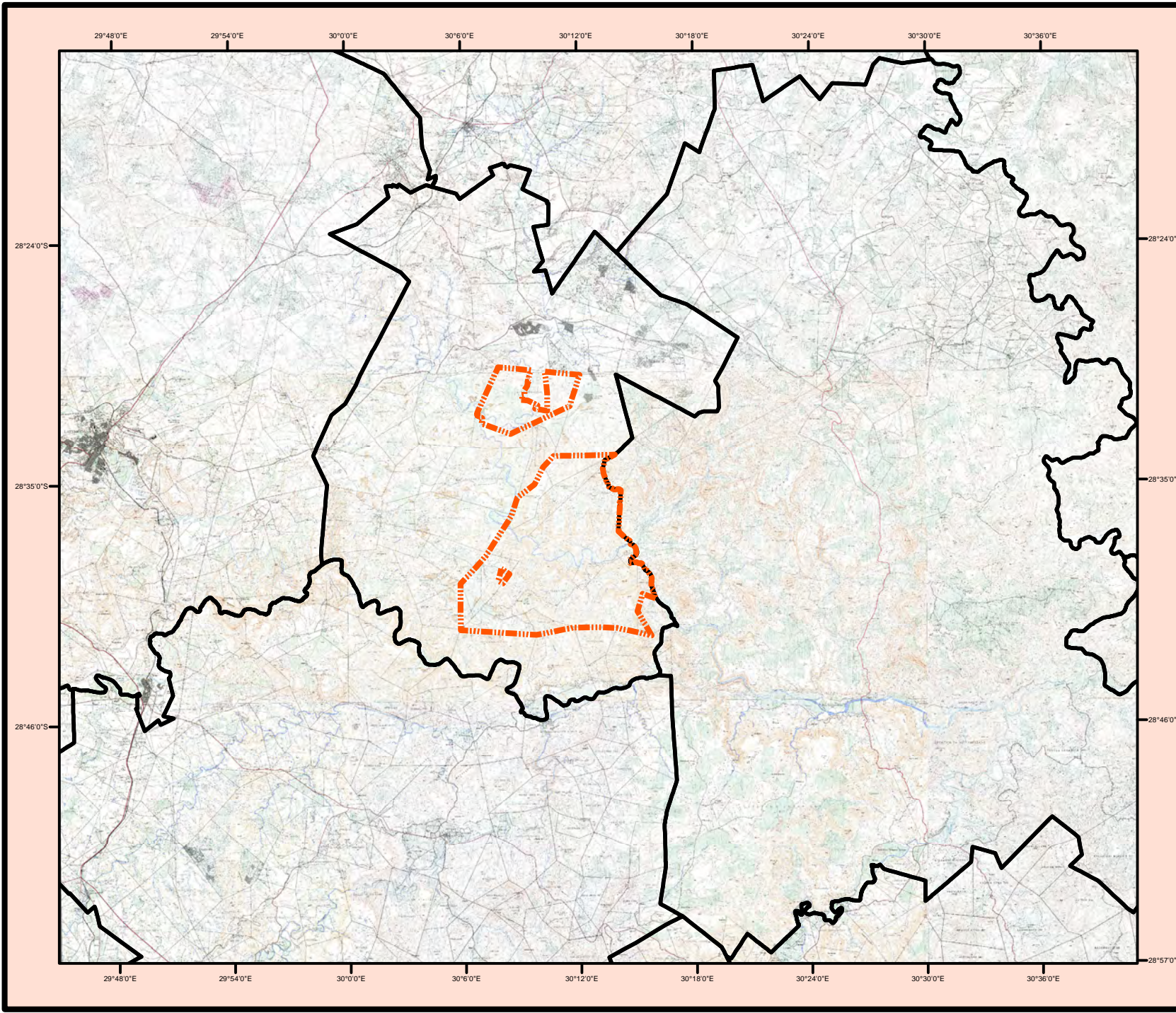
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Environmental Assessments	Project Management	Training	Environmental Monitoring
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## 2 APPROACH AND METHODOLOGY

### 2.1 APPROACH

#### 2.1.1 Applicable legislation

The National Environmental Management Act (No. 107 of 1998) provides for the control of certain listed activities which “*may have a detrimental effect on the environment.*” In terms of the Environmental Impact Assessment (EIA) Regulations Listing Notice 1, Listing Notice 2 and Listing Notice 3 of 2010, such activities are prohibited until written authorisation is obtained from the Minister or his delegated authority. Activities listed in EIA Regulations Listing Notice 1 and Listing Notice 3 of 2010 will require a Basic Assessment to be conducted while activities listed EIA Regulations Listing Notice 2 of 2010 will require a thorough EIA process which includes a Scoping Report and an Environmental Impact Assessment Report.

The Department of Agriculture and Environmental Affairs (DAEA) have in the past indicated that it is their opinion that the development and construction of rural subsidised housing projects on Ingonyama Trust Land **do not constitute a listed activity** as identified in terms of Environmental Impact Assessment Regulations. This opinion was based on the fact that the Rural Housing Projects entail the construction of housing units within existing iMuzi’s (brown Field Development). Due to the fact that such projects do not constitute listed activities they therefore did not require environmental authorisation in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA), and as such **no environmental authorisation** was required from the Department of Agriculture and Environmental Affairs for projects of this nature. However a recent change in the Rural Housing Process methodology which focuses on the densification of areas and as such the establishment of greenfield sites will require Environmental Authorisation from the Department of Agriculture and Environmental Affairs.

The National Environmental Management Act (No. 107 of 1998) provides for the control of certain listed activities which “*may have a detrimental effect on the environment*” if not controlled. In terms of the Environmental Impact Assessment (EIA) Regulations Listing Notice 1, Listing Notice 2 and Listing Notice 3 of 2010, such activities are prohibited until written authorisation is obtained from the Minister or his delegated authority. Activities listed in EIA Regulations Listing Notice 1 (Gov. Notice

No. R544) and Listing Notice 3 (GNR R546) of 18 June 2010 will require a Basic Assessment to be conducted while activities listed EIA Regulations Listing Notice 2 (GNR R545) of 18 June 2010 will require a Full EIA process which includes a Scoping phase and an Environmental Impact Assessment phase. The development footprint of the Greenfield Sites will ultimately determine whether a Basic Assessment Process or a full EIA process should be undertaken. Should the development footprint be 20 hectares or less then only a Basic Assessment Report should be required, however should the development footprint be calculated as larger than 20 hectares then the full EIA process should be undertaken.

The purpose of this preliminary environmental assessment is thus to identify possible strategic environmental issues at the earliest possible stage in the planning process to:

- Ensure that environmental issues are addressed in a pro-active manner in the development of the housing process.
- Improve the assessment of strategic environmental impacts that might be caused by the envisaged developments, and
- Ensure that the concept of sustainability is integrated with developmental decision making.

This Preliminary Environmental Assessment is prepared in terms of the Stage 1 application (reservation of beneficiaries) requirement of the Department of Human Settlement. This Report will be submitted to DAEA for official comment and to determine the way forward.

The overall approach towards this preliminary assessment is therefore based on the concept of sustainable development within the context of the official definition of sustainable development being: *“development that aims for equity within and between generations and adopts an approach where the economic, social and environmental aspects of development are considered in a holistic fashion”*.

## 2.2 METHODOLOGY

This Preliminary Environmental Assessment thus provides a summarized overview of some of the key aspects relating to the social, economic, infrastructural, service and biophysical environments which impact on, and are similarly impacted upon by the Somshoek and Esikoko Rural Housing project area. The summarized overviews of various aspects contained within the Preliminary Environmental Assessment have been based on a combination of existing available desktop information sources as well as the findings and observations derived from the recent on-site survey conducted of the project area.

Available desktop information sources include information derived from the 2011 South African Census, as well as the Indaka Local Municipality Integrated Development Plan 2012/2013; and various spatial GIS information. These information sources were initially made use of to establish the general status quo conditions of various social, economic, service and infrastructural demographics which impact on and are subsequently impacted upon by the project area and its local population. As a supplement to the information provided and discussed within the assessment report a number of accompanying thematic maps have also been included within the report, which provide a graphical representation of various biophysical factors at play within the project area.

The report has generally been structured as follows:

- **Section 3** deals with the **Socio-Economic Development component** of the project area. The social component addresses aspects such as age, gender, education and housing, while the economic component addresses aspects such as monthly household income, employment status, and a profile of the economic sectors within which the employed proportion of the project area population are involved in within the Somshoek and Esikoko Rural Housing project area.
- **Section 4** deals with the **services and infrastructural component** of the project area. The services component therefore addresses residents' access to water, sanitation, electricity, telecommunication infrastructure and waste removal services, while the infrastructural component addresses the road network and stormwater management systems within the project area.
- **Section 5** deals with the **biophysical characteristics** of the project area, and therefore covers aspects such as land cover, topography and drainage, floodline areas, soils,

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geology, vegetation, Ezemvelo KwaZulu-Natal's C-Plan irreplaceability value, mineral deposits, archaeological, cultural and historical sites, and potential sources of pollution.

- **Section 6** provides a brief overview of the **current settlement pattern** of the Somshoek and Esikoko Rural Housing project area, and discusses some of the impacts associated there with.
- **Section 7** provides a **summary conclusion** of the findings of the Preliminary Environmental Assessment Report and the potential impact of the proposed development on the environment and local population, while also providing some recommendations with which to minimize or negate any negative impacts.

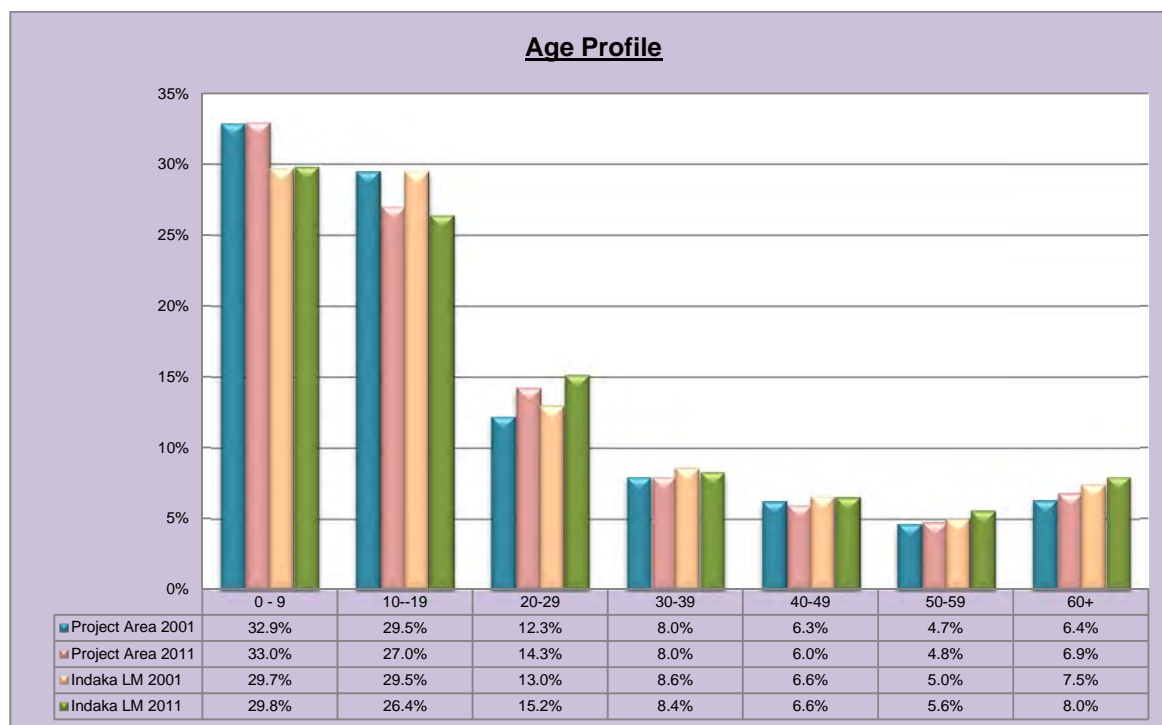
## **3 SOCIO-ECONOMIC COMPONENT**

### **3.1 SOCIAL DEMOGRAPHIC CHARACTERISTICS**

The figures illustrated below were prepared from the Census 2011 data and present a socio-economic overview of the study area. The Somshoek and Esikoko Rural Housing Project Area falls within the jurisdiction of the Indaka Local Municipality; the figures of the study area are therefore presented together with the overall figures of the municipality to yield a comparative socio-economic overview of the study area. The total population of the study area is approximately 21 361 persons and the population of the municipality is estimated at 103 116 persons. The Somshoek and Esikoko Rural Housing project area accounts for 20.72% of the total population of the Indaka Local Municipality.

#### **3.1.1 Age Profile**

The age profile of the Somshoek and Esikoko Rural Housing (project area) and of the Indaka Local Municipality is depicted in Figure 3.1 below. It is clearly evident from the graph that the majority of the population (60%) of the project area are younger than the age of 19 years. A total of 22.3% are between the ages of 20 and 39 years. 10.8% of the population fall in the age category of 40 – 59 years, while only 6.9% of the total population of the project area are older than the age of 60 years. The age distribution figures suggest that the population of the study area mostly consists of young individuals who will become the adults in the near future. The overall figures of the municipality and the 2001 census information show a relatively similar trend of age distribution to the study area as indicated in Figure 3.1 below.

**Figure 3.1: Age Profile**

Source: 1) Statistics SA, Census 2001

2) Statistics SA, Census 2011

### 3.1.1.1 Implications for the Rural Subsidised Housing Project:

Age distribution patterns are of utmost importance when planning future development and allocating rural subsidies as various subsidised facilities will be better enjoyed by individuals of certain ages now and in the future. Age distribution is also considered when determining the need for other supporting facilities necessary to ensure maximal yield of benefits of any given development, such as the proposed subsidised housing project. The age distribution structure of the population of the project area has various implication as far as subsidised rural housing is concerned, which must be considered during the planning (location) and implementation of the project, these include:

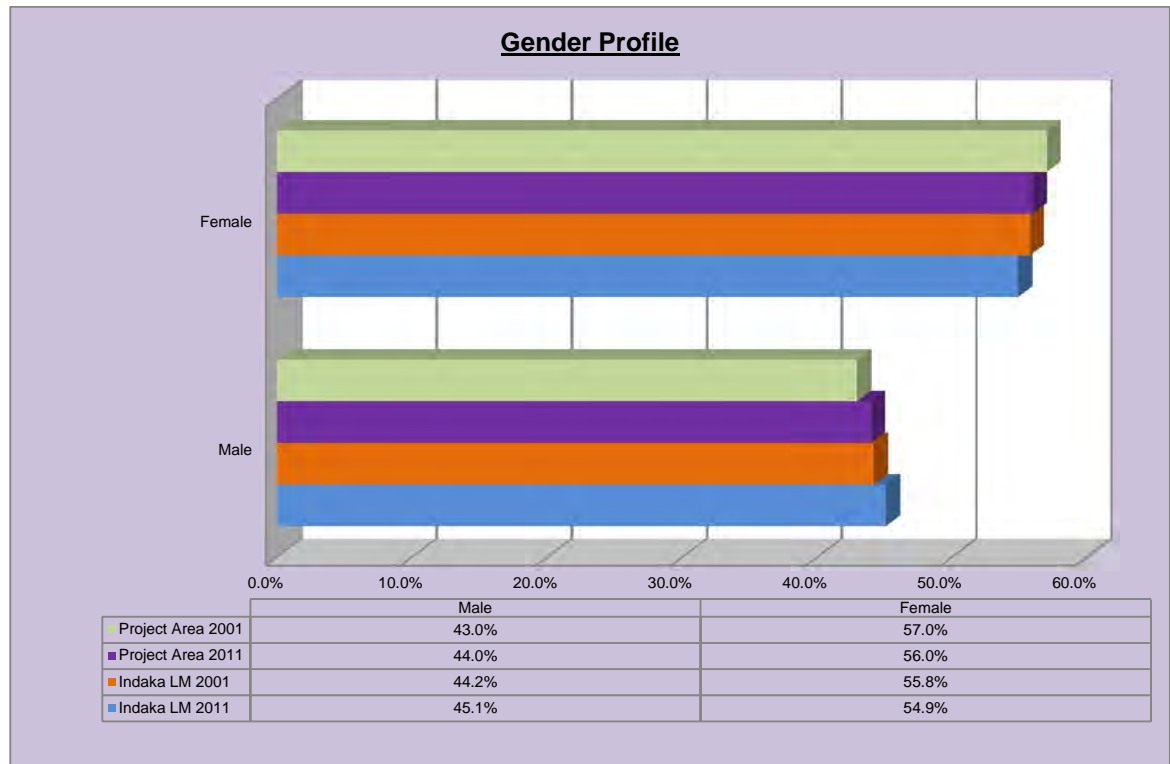
- Provision of sufficient and appropriate education facilities within close proximity to the housing development, and thereby ensuring that scholars do not travel unnecessary distances.
- Provision of economic and/ or employment opportunities within close proximity of the houses as a large number of young people will be entering the economically active age category over the next five to ten years and will thus be seeking appropriate employment opportunities.

- Provision of adequate social services and amenities: as the young age profile increases the proportion of the population which are not yet economically active which results in a high dependency ratio which places increased pressure on social services, facilities, and amenities. Provision of such services will not only benefit young individuals but rather the community at large.

The lack of such facilities and services within close proximity to the area will result in the individuals and families relocating to areas where such services are available and therefore leaving the subsidised houses which were meant to improve their quality of life, thereby limiting the success of the proposed housing project.

### **3.1.2 Gender Profile**

According to the 2011 census information as much as 56% of the total population of the study area is female and 44% are male. Relatively similar trends of a female dominant population are evident for the overall Indaka municipal area with 54.9% of the total population being female and 45.1% being male. The Figure 3.2 below illustrates a female dominant population within the study area and the overall municipality.

**Figure 3.2: Gender Profile**

Source: 1) Statistics SA, Census 2011

2) Statistics SA, Census 2001

### 3.1.2.1 Implications for the Rural Subsidised Housing Project:

The implication of gender roles within the Somshoek and Esikoko Rural Housing project area therefore needs to be given due consideration with regards to the implementation of the envisaged rural subsidised housing project. Practices of gender equality and empowerment are necessary to ensure that benefits derived from the implementation of the proposed development are distributed in such a way that is reflective of the population structure as a whole.

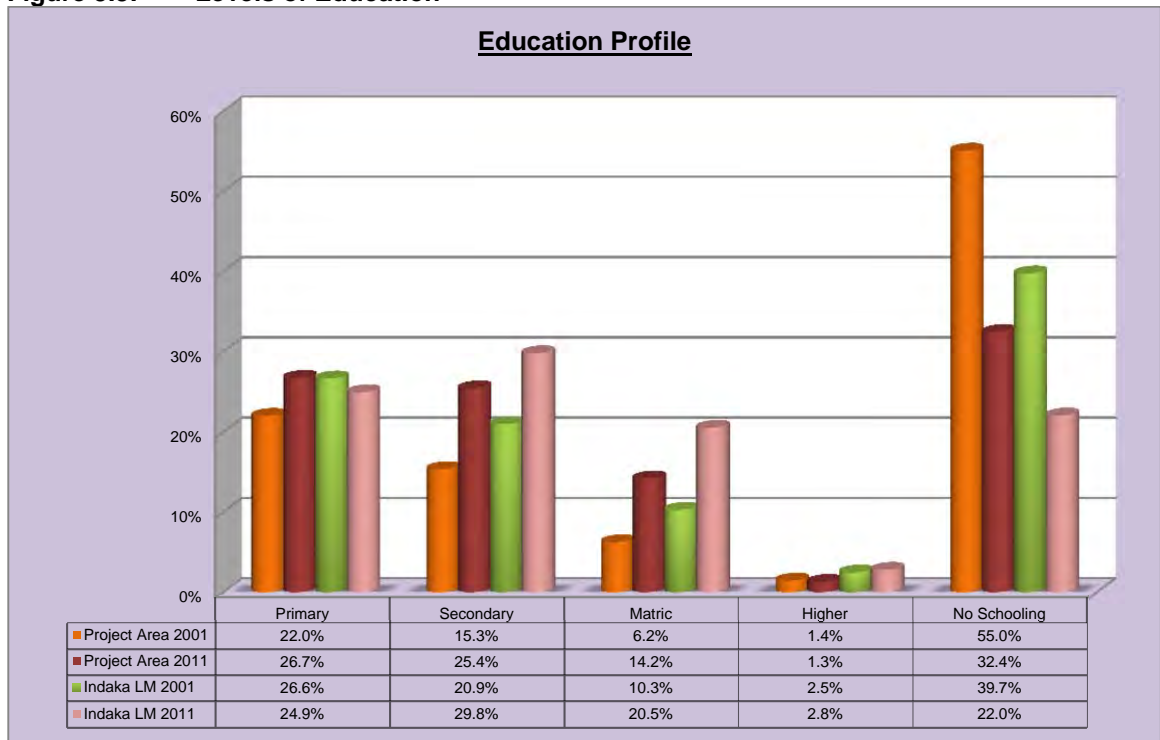
### 3.1.3 Education Profile

The 2011 education profile of the study area and the Indaka Local Municipality is illustrated in Figure 3.3 below. These figures illustrate the education levels of persons over the age of 20 years and therefore falling into the economically active categories of the population. The figures suggest relatively low education and literacy levels within the study area with as much as 32.4% of the population have indicated that they have not undergone any formal schooling, this figure is better



than what it was in 2001(55.0%), and only 26.7% have completed primary schooling. Only 25.4% of the adult population of the project area indicated to have some secondary education with only 14.2% of the population indicating to have completed Grade 12 and only 1.3% of the total population have undergone some form of post matric/ tertiary education training. The figures of the overall Indaka municipal area indicate a relatively similar low education profile for the municipality with as much as 22.0% of the economically active population having undergone no formal schooling, 24.90% has completed some primary level education and only 20.5% and 2.8% having completed Grade 12 and tertiary education respectively.

**Figure 3.3: Levels of Education**



Source: 1) Statistics SA, Census 2001  
 2) Statistics SA, Census 2011

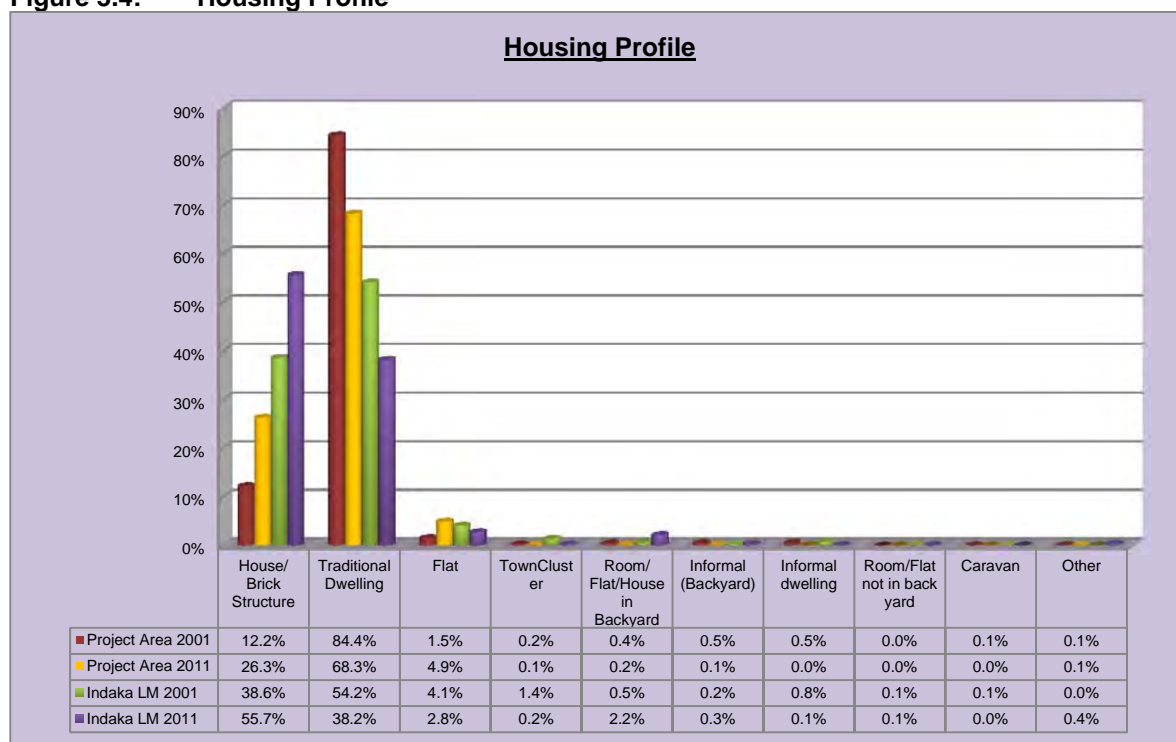
**3.1.3.1 Implications for the Rural Subsidised Housing Project:**

The level of illiteracy within the Somshoek and Esikoko Rural Housing project area will need to be taken into consideration with regards to the implementation of the proposed project to ensure that that proportion of the study area population which are illiterate are assisted, included and involved in community participation practices, and are not discriminated against as a result. Technical aspects of the proposed housing project may have to be communicated as they need to be clearly understood by the beneficiary communities. Specific provisions will need to be made to include

those members of the project area population who may be illiterate in the development process, so as to avoid the possibility of exclusion of certain demographics. Facilities with which to cater to adult education could similarly constitute a viable option for future municipal developments of the area. In terms of overall project development and management it is important to ensure that all beneficiaries fully understand and grasp the implications and technical aspects relating to this housing initiative.

### **3.1.4 Housing Profile**

Figure 3.4 below depicts the housing profile of the study area and for the Indaka Local Municipality. The most predominant housing type within the study area is “Traditional Dwelling” with the majority (68.3%) of household within the project area residing in structures of this nature; the second most predominant housing type is the “House/ Brick Structure” with 26.3% of houses within the project area falling into this category. Traditional dwellings include mud houses, clay houses and huts made of animal manure. Other housing types exist within the study area but in relatively low numbers as depicted in the graph below. The overall figures for the municipality area depict a relatively similar housing profile with the second most predominant housing type being “traditional dwellings made of traditional material”.

**Figure 3.4: Housing Profile**

Source: 1) Statistics SA, Census 2001

2) Statistics SA, Census 2011

#### 3.1.4.1 Implications for the Rural Subsidised Housing Project:

According to the Housing Act, 1997, it is pertinent that all citizens and permanent residents of the Republic will, on a progressive basis, have access to:

- Permanent residential structures with secure tenure, ensuring internal and external privacy and providing adequate protection against the elements.

The National legislated (RDP) minimum norms and standards in respect of housing supply in South Africa is considered to be a brick top structure of 40 m<sup>2</sup> (minimum), of which only 26.3% of households in the project area; and 55.7% of the households within Indaka Local Municipality; have access to housing services at this level. This national standard has been accepted by the Department of Housing as their minimum norms and standards for the rural housing instrument as far as subsidised housing provision is concerned.

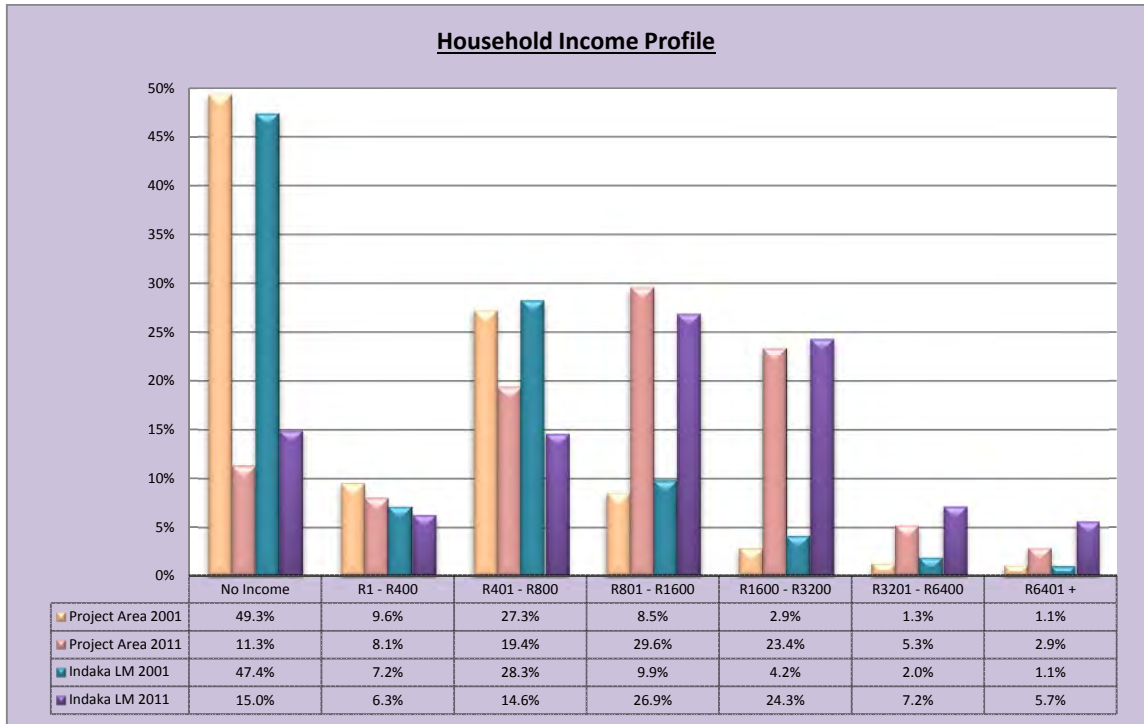
Due to the informal and traditional nature of a significant number (68.3%) of houses situated within the Somshoek and Esikoko Rural Housing project area, the need for the implementation of a rural subsidized housing project is clearly evident. Such a factor should therefore support and favour the implementation of the proposed project on the Somshoek and Esikoko Rural Housing project area.

## **3.2 ECONOMIC DEMOGRAPHIC CHARACTERISTICS**

### **3.2.1 Household Income and Affordability Profile**

Figure 3.5 below illustrates a relatively low household income profile within the Somshoek and Esikoko Rural Housing project area and the overall Indaka Local Municipality. As much as 65.4% of the total number of households within the study area indicated a collective monthly household income of R1600 and less, 23.4% fall within the income range of R1600 – R3200, 5.3% earn between R3200 and R6400 while only 2.9% of the total number of households indicating a collective monthly household income of more than R6400. The 2011 census data is better in terms of the “No Income” class that went from 49.3% (2001) to 11.3% (2011). Relatively similar monthly household income trends can be seen for the overall Indaka local municipality in figure 3.5 below.

**Figure 3.5: Monthly household income**



Source: 1) Statistics SA, Census 2001  
 2) Statistics SA, Census 2011

**3.2.1.1 Implications for the Rural Subsidised Housing Project:**

The figure above indicates relatively low affordability levels within the project area and the overall municipal area. The proposed subsidised housing project will benefit many households with low monthly income and who cannot afford proper housing. The ability of residents to pay for service levels above the minimum required standards will also be very limited.

**3.2.2 Employment Profile**

Figure 3.6 below illustrates the employment profile of the study area and the overall municipal profile. As much as 21.19% of the adult economically active population indicated to be unemployed, according to the narrow definition of unemployment. These figures include persons older than the age of 15 who indicated that they were unemployed at the time of the survey but seeking employment and that they were willing to take up any employment position should it be presented. Only 19.36% of the economically active population within the study area indicated that they were employed at the time of the survey. The survey on the overall employment profile of the Indaka

local municipality indicated relatively similar situation with only 24.36% of the population being employed and as much as 32.58% being unemployed. The very low affordability levels of the study area population are directly related to the high unemployment rate within the area.

**Figure 3.6: Percentage of Economically Active population unemployed**



Source: 1) Statistics SA, Census 2011

### 3.2.2.1 Implications for the Rural Subsidised Housing Project:

The potential role of the envisaged rural housing project in providing some employment and income generating opportunities during the construction and implementation phases should clearly be a key consideration in the project plan. The development of technical skills relating to construction which could benefit the project beneficiaries after completion of the housing project should also be considered in the project implementation and management stages.

## 4 SERVICES AND INFRASTRUCTURE

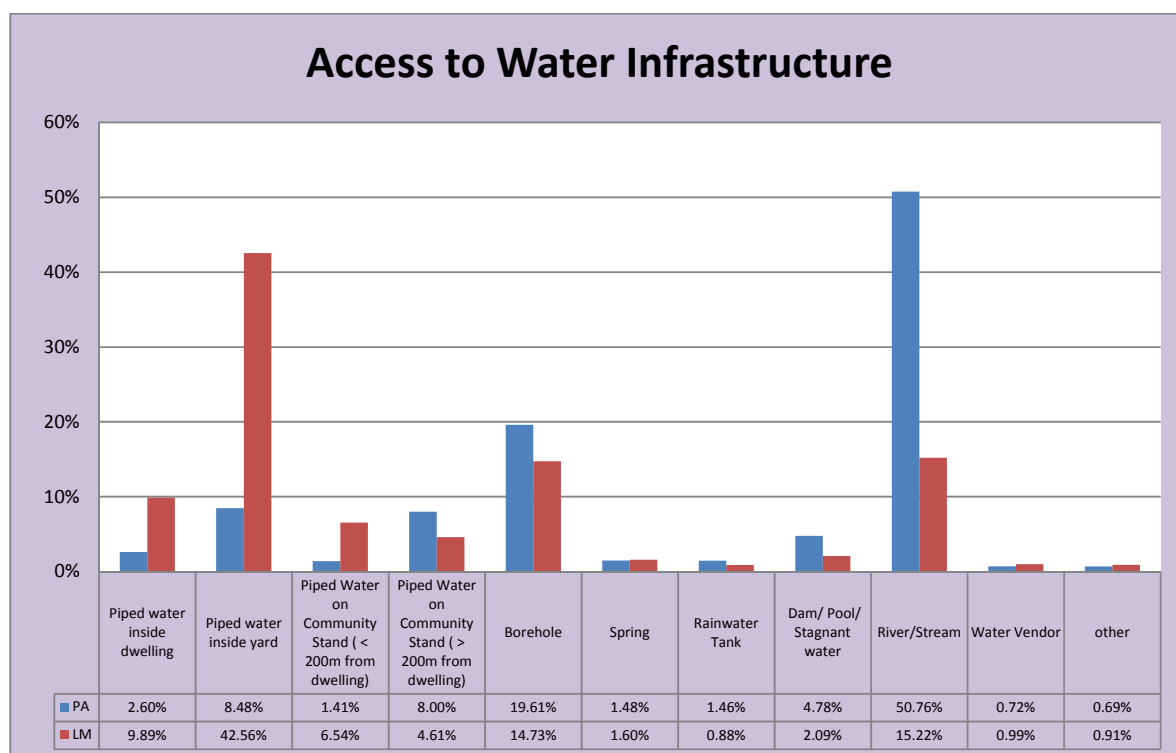
### 4.1 SERVICES DEMOGRAPHICS

#### 4.1.1 Access to water infrastructure

Figure 4.1 below illustrates the various sources of water, for drinking and other auxiliary household uses, for communities residing within the project area and the overall Indaka local municipality. The figure shows relatively limited access to running water in the project area with only 2.6% of the total number of households having access to piped water “inside dwelling”, 8.48 having access to piped water “inside yard” while 1.41% “access water from a communal stand pipe situated within 200m” from the dwelling. 19.61% of households within the study area make use of boreholes, a further 1.48% utilise water from natural springs, and 4.78% from dams and 1.46% make use of rainwater. As much as 50.76% (majority) of the households make use of rivers and streams and 0.72% of the households buy water from a vendor who probably sourced it from the above mentioned sources which are situated at a greater distance from the households. It is quite clear that access to clean reliable running water was very limited at the time that the survey was conducted within the Somshoek and Esikoko area. The area was underdeveloped as far as water infrastructure is considered.

The overall figures for the Indaka local municipality, on the other hand, suggest better provision of water to households with as much as 9.89% and 42.56% of households having access to piped water “inside dwelling” and “piped water inside yard” respectively. A further 6.54% of households indicated to source water from a communal tap situated within a distance of 200 meters while 4.61% would source water from a communal tap situated more than 200 meters from the dwelling. However, a significant number (15.22%) of household within the municipality would utilise water from rivers and streams and 2.09% from natural dams. These figures suggest that the project area is relatively underdeveloped as far as water infrastructure provision is compared to that of the average figure (overall municipality).

Figure 4.1: Access to water infrastructure



Source: Statistics SA, Census 2011.

#### 4.1.1.1 Implications for the Rural Subsidised Housing Project:

The levels of service delivery derived from acceptable national policy frameworks which are relevant for the level of water services indicate the following definitions as being applicable:

- A 'Survival' level of service providing five (5) to eight (8) litres of water per capita per day at 800 – 1500 meters walking distance;
- The RDP level of service providing twenty five (25) litres of water per capita per day at 200 meters walking distance; and
- A higher level of service providing more than twenty five (25) litres of water per capita per day and at less than 200 meters walking distance. It even includes a yard or house connection.

The National legislated (RDP) minimum norms and standards in respect of water supply in South Africa are therefore considered to be a maximum 200 m's walking distance between a communal stand pipe and one's residence, of which approximately only 6.54% of the total Indaka Local municipal population and 1.41% of the Somshoek and Esikoko Rural Housing project areas total population have access to water services at this level. This national standard has been accepted by



the Department of Housing as their minimum norms and standards for the rural housing instrument as far as subsidised housing provision is concerned. Therefore, due to the fact that the provision of water amounts to housing purposes in terms of the Housing Board/Department of Human Settlements explanation of rural subsidies, the provision of water at the minimum RDP level of service provision at least should constitute a key municipal objective for implementation in the Somshoek and Esikoko Rural Housing project area, as well as the Indaka Local Municipality as a whole. The provision of Rural Subsidised Housing should therefore not occur in isolation but should be supported by various other necessary infrastructural and service provision projects.

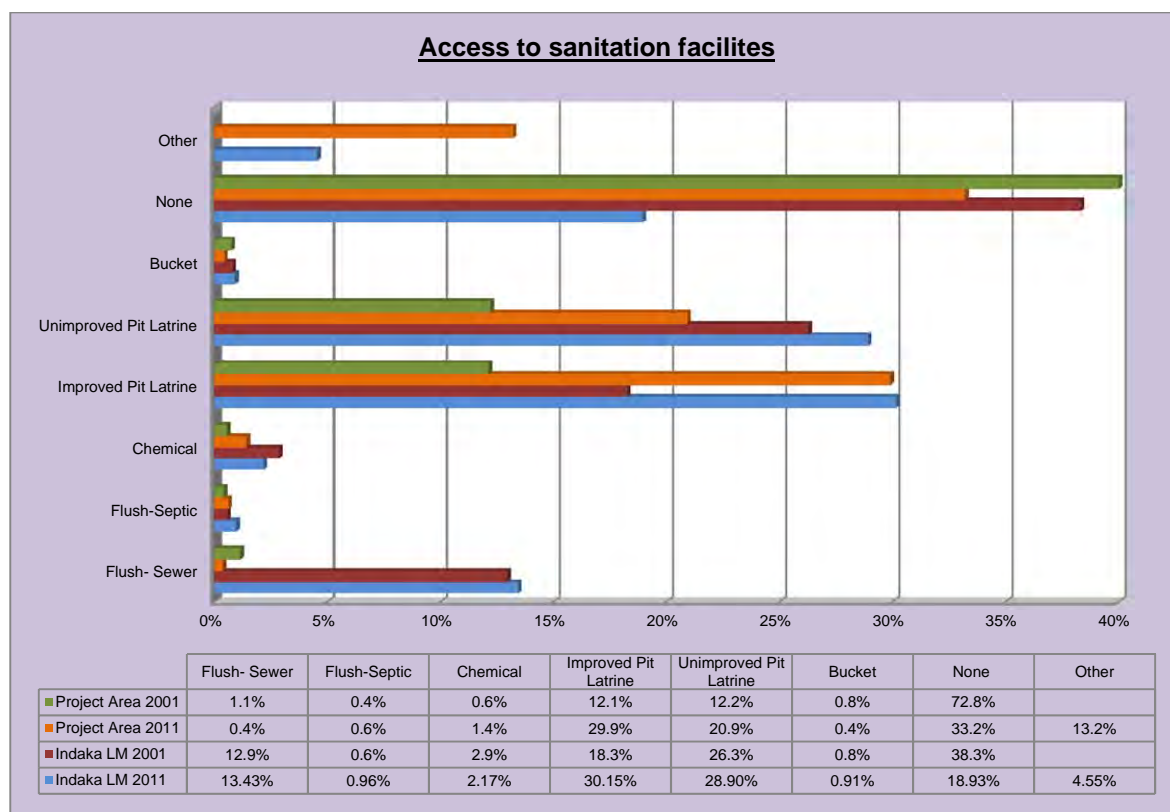
#### **4.1.2 Access to Sanitation Infrastructure**

As much as 20.9% of the total number households with in the Somshoek and Esikoko Rural Housing project area make use of “unimproved non ventilated Pit latrine” toilet facilities and 29.9% having improved “ventilated pit latrine” toilets. As much as 33.2% of the households were recorded as having no access to any sanitation facilities while 1.4% and 0.4% made the use of chemical toilets and bucket toilets respectively. Only 0.4% of households in the project area indicated to use of flush toilets connected to a sewage system and 0.6% connected to a septic tank system.

The statistics of the overall Indaka Local municipality indicate that 28.9% of households making use of “non-ventilated pit toilets” with 30.15% having “ventilated pits toilets. A total of 2.17% of households at municipal level make use of chemical toilets and 0.91% is on the bucket system. Only 18.93% percentage of households within the overall municipal area indicated to not have any sanitation facility. While 13.43% of the total number of households within the Indaka local municipality makes use of flush toilets connected of a sewer system while 0.96% use flush toilets connected to a septic tank. The absence of appropriate sanitation infrastructure in the project area is clearly evident from the information depicted in Figure 4.2 below. The comparative figure of households with no access to any sanitation facilities indicate the Sithole, Mthembu and Ingwe TA (33.2%) being relatively under-service compared to the average municipal figure of 18.93%. The average number of households with flush toilets in Indaka LM is relatively higher than that of the project area and chemical toilets are used less in the project area compared to the overall municipal area. The figures however indicate a relatively high need of proper sanitation facilities but the limited access to running water within the area could be a major reason for the lack of sanitation infrastructure in the Somshoek and Esikoko Rural Housing project area.

The potential impact of the extensive utilization of unimproved pit latrines and other forms of inappropriate sanitation infrastructure, on biophysical aspects such as surface and ground water, as well as the potential health implications is clearly evident from these figures, as is the need for improved access to sanitation infrastructure in both the Somshoek and Esikoko Rural Housing project area and the greater Indaka Local Municipality.

**Figure 4.2: Access to sanitation infrastructure**



Source: 1) Statistics SA, Census 2001

2) Statistics SA, Census 2011

#### 4.1.2.1 Implications for the Rural Subsidised Housing Project:

The levels of service delivery derived from acceptable national policy frameworks which are relevant for the level of sanitation services indicate the following definitions as being applicable:

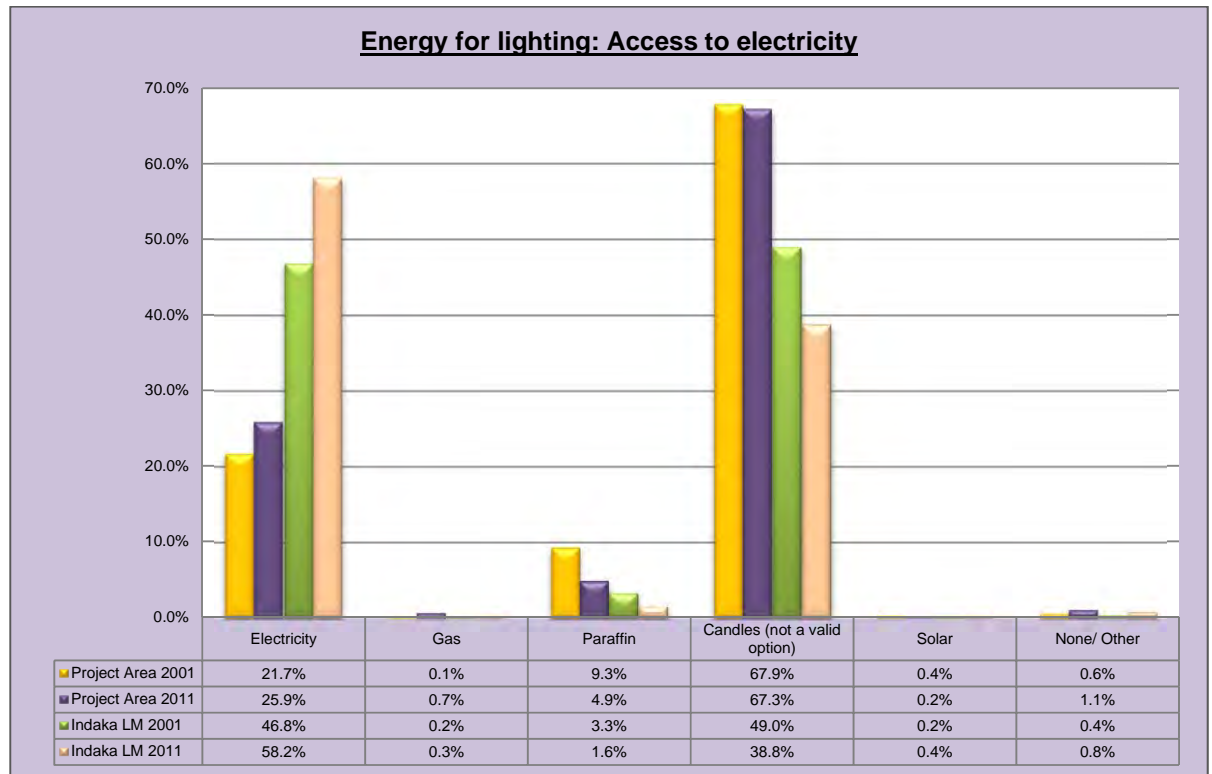
- a Ventilated Improved Pit latrine (VIP) level of service;
- the interim level of service providing on-site sanitation that could include amongst others a on-site dry system (single, double pit or organic systems such as the Enviroloo) or an on-site wet system (such as a low flush or a septic tank and french drain); and

- a waterborne level of service providing treatment of raw sewage by means of a Sewage Treatment Works.

The National legislated (RDP) minimum norms and standards in respect of sanitation service provision in South Africa is considered to be ventilated improved pit toilet (VIP), of which approximately 38.37% of the total households in Indaka Local municipal area and 68.97% of the Somshoek and Esikoko Rural Housing project areas total population have access to sanitation services at this level. This national standard has been accepted by the Department of Human Settlements as their minimum norms and standards for all rural housing instruments as far as subsidised housing provision is concerned. Therefore, due to the fact that the provision of sanitation amounts to housing purposes in terms of the Housing Board/Department of Human Settlements explanation of rural subsidies, the provision of sanitation at the minimum RDP level of service provision at least should constitute a key municipal objective for implementation in the Somshoek and Esikoko Rural Housing project area, as well as the Indaka Local Municipality as a whole. The provision of Rural Subsidised Housing should therefore not occur in isolation but should be supported by various other necessary infrastructural and service provision projects.

#### **4.1.3 Access to electricity infrastructure**

Figure 4.3 below indicates the various energy sources used for lighting purposes by households within the Somshoek and Esikoko Rural Housing project area and overall Indaka municipal area. During the time of the survey, 67.3 (the majority) of households within the project area indicated that they made use of candles as a source of lighting in the house while 25.9% used electricity. A further 4.9% and 0.7% made use of paraffin and gas lighting respectively. The trends in “energy for lighting” statistics recorded for the overall municipal area were relatively similar with as much as 58.2% of the households within the overall Indaka municipality indicating to make use of electricity for lighting while only 38.8% used candles for lighting in 2011. Paraffin (1.6%) and Gas (0.3%) were also recorded as lighting source respectively; while 0.4% of the total number of households within the municipal area indicated the use of solar energy as a source of lighting. The proportion of households with access to electricity in the study area is relatively the same as the comparative figure for the Local Municipality.

**Figure 4.3: Access to electricity infrastructure**

Source: 1) Statistics SA, Census 2001  
2) Statistics SA, Census 2011

#### 4.1.3.1 Implications for the Rural Subsidised Housing Project:

The provision of an internal electrical reticulation network is not viewed as a minimum requirement as far as subsidised housing is concerned, and as such the provision of an internal electrical reticulation network does not form part of the proposed rural subsidised housing project. The absence of appropriate electricity infrastructure can often result in the extensive utilization of firewood for cooking and heating purposes with the resulting potential negative impact on natural vegetation. Limited access to electricity infrastructure often contributes to the general deforestation of the surrounding area, and increased levels of air pollution arising from the use of firewood for cooking and heating purposes.

#### 4.1.4 Access to telecommunication infrastructure

The growing importance of direct access to appropriate telecommunication infrastructure to facilitate access to appropriate sources of information in support of Local Economic Development is becoming an increasingly important development consideration. The inclusion of aspects such as rural telecentres as part of the housing development initiative could play an important role to address this gap.

##### 4.1.4.1 Implications for the Rural Subsidised Housing Project:

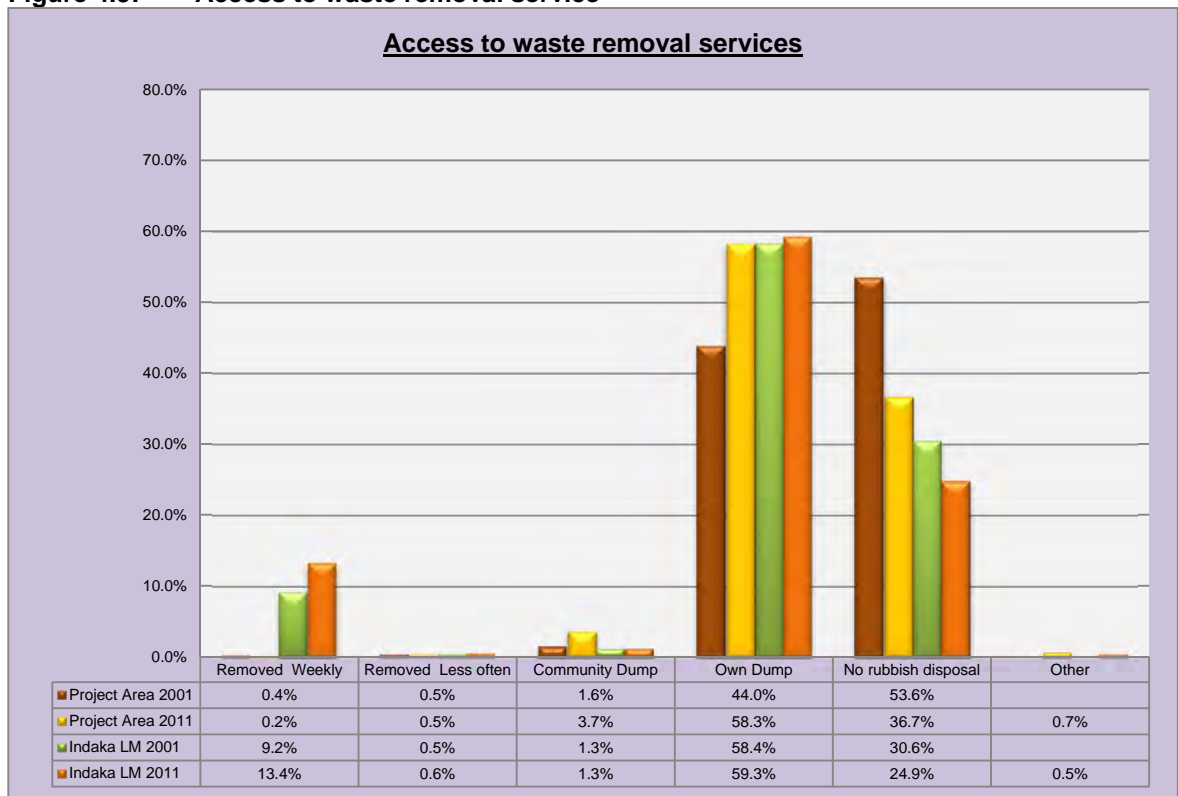
The provision of an internal telecommunications network is not viewed as a minimum service level requirement as far as rural subsidised housing is concerned, and as such the provision of a telecommunication network does not form part of the proposed rural subsidised housing project. The absence of appropriate telecommunication infrastructure can have negative impacts in terms of the local communities' inability to report emergencies as and when they happen in order to receive the necessary response from respective emergency services. A lack of appropriate telecommunication infrastructure also impacts negatively with regards to local businesses which may be trying to operate within the area. Limited access to appropriate and reliable telecommunication infrastructure contributes to certain areas which are uncatered for being disconnected from the remainder of the general population being unable to keep in touch their friends, families and loved ones at other locations, and results in numerous inconveniences which wouldn't normally be experienced in areas which are appropriately catered to regarding telecommunication infrastructure.

#### 4.1.5 Access to Waste Removal Services

The graph in Figure 4.5 below depicts the various waste management/ removal methods recorded as being used by the various households within the project area and the overall local municipality. The limited availability of any form of formalized refuse removal system in the Somshoek and Esikoko Rural Housing project area and the overall Indaka Local Municipality at the time of the survey is clearly illustrated in the graph. As much as 58.3% of the total number of households within the project area indicated that they make use of their own refuse dump, be it pit holes in the yard or in close proximity to the house. A relatively similar percentage (59.3%) of households within the entire Indaka local municipality indicated to use the same method of waste disposal. A further

36.7% of households in the project area and 24.9% in the overall municipal area indicated that they had no practised waste disposal method in place. A figure of 0.2% of households within the Somshoek and Esikoko project area was recorded for households whose refuse was collected by the municipality once a week and 0.5% of households in Somshoek and Esikoko indicated that their refuse was collected by the local municipal authority less often than weekly basis. The figures from the graph indicate that 13.4% of the households in Indaka local municipality had their refuse collected once a week and 0.6% collected less often than on a weekly basis while 1.3% made use of communal dump sites. From the graph it is evident that the majority of households in the Somshoek and Esikoko Rural Housing project area and the overall Indaka municipal area have no access to any form of waste removal or disposal services and dispose of their refuse through means of their own refuse dumps.

**Figure 4.5: Access to waste removal service**



Source: 1) Statistics SA, Census 2001  
 2) Statistics SA, Census 2011

**4.1.5.1 Implications for the Rural Subsidised Housing Project:**

The Indaka Local Municipality, who is also the service provider responsible for the provision of a functional waste removal and disposal system within the Somshoek and Esikoko Rural Housing

project area, does not currently provide any form of refuse removal and disposal services to the rural areas of its municipal area. The absence of waste removal services in the study area can not only impact negatively on the biophysical environment, but also on the aesthetic appearance of the area, and the overall health profile of the resident communities, as well as their livestock as a result of livestock ingesting such waste.

## 4.2 INFRASTRUCTURE

### 4.2.1 Roads

This section of the report provides an overview of existing road networks occurring across and providing access to the Somshoek and Esikoko Rural Housing (project area). The details of proclaimed road networks are depicted in the Table 4.6 below. This information describes the various categories/ types of roads and includes Provincial (P), District (D) and Local (A) or (L) roads; contained under the respective headings. **It must however be noted that the scope of the proposed Somshoek and Esikoko Subsidised Housing Project does not include any major construction of new roads to the project area, in some instances some individual access roads will be constructed but which will be well below the triggers for environmental authorisation. The accesses will be less than 4 meter wide, with no construction activity being permitted within 32m of a wetland, stream, dam or a river.**

**Table 4.6: Access to the Somshoek and Esikoko Rural Housing Project Area**

Municipal Ward	Road Category	Road Number	Access Summary
4	District	D1290	Entering the in the northern boundary running south
		D871	This district road runs on the most northern bopundary of the project area from west to east
7	Provincial	P361	This Provincial road enters on the eastern boundary and continues in a western direction
	District	D1278	This district road enters on the western boundary and continues in a eastern direction
9	Provincial	P281	the P281 enter on the southern boundary and runs in a north eastern direction towards the eastern boundary where it exit
		P349	This Road enters in the south west and intersects with P281 in the south
	District	D1280	This road is located in the central part of the project area and intersects with P281
		D1281	Enters on the south west and intersects with P349
		D1371	This road run in the south western part from P349
		D2255	This road enters in the southern area and intersects with P281
		D2304	This road enters in the western boundary running south - east

**(i) National Roads**

There are no National Roads that have been proclaimed through the project area.

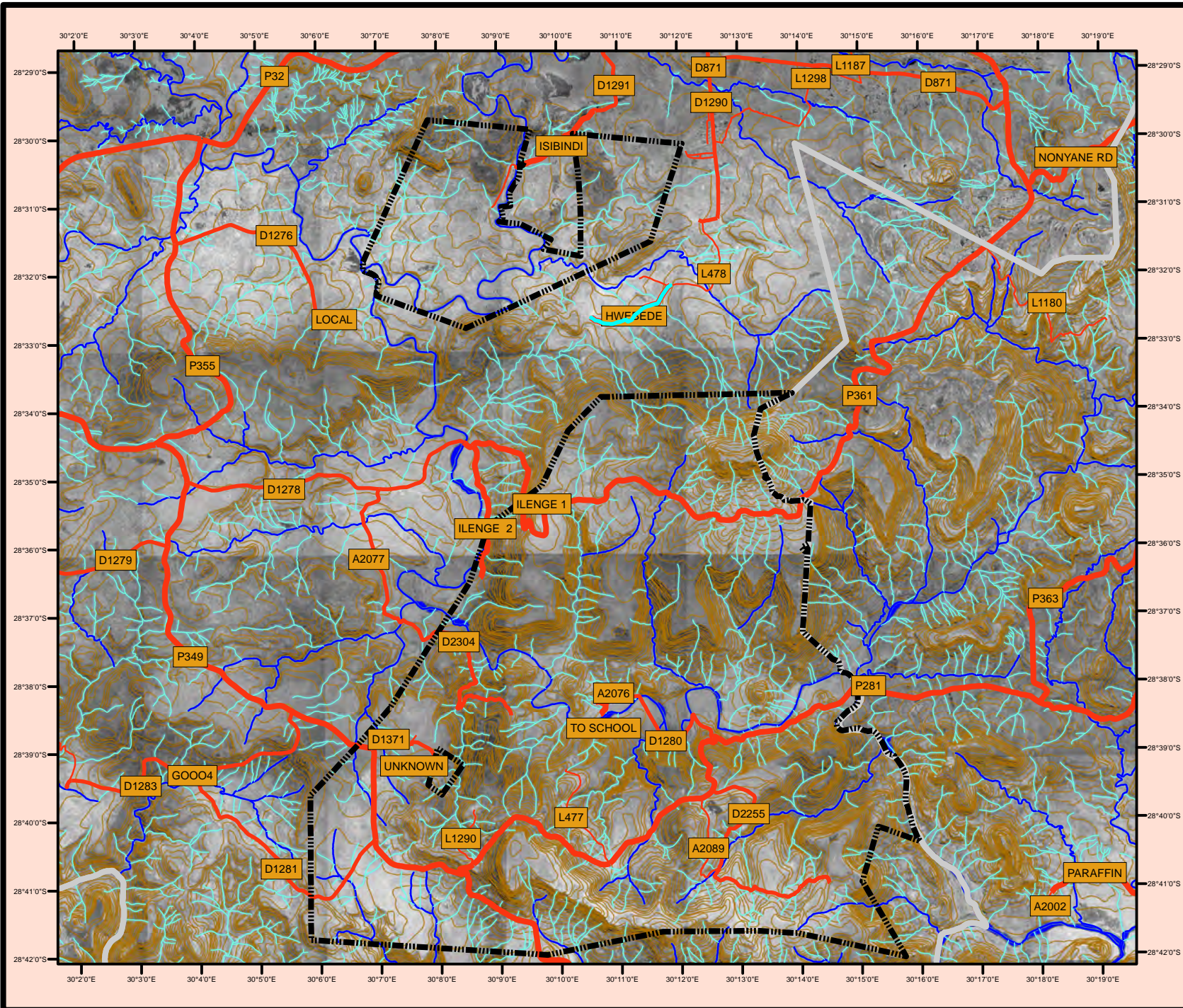
**(ii) Provincial Roads**

There are three proclaimed provincial roads (P281, P349, and P361) within the project area.

**(iii) District Roads**

Eight district roads have been proclaimed through the Somshoek and Esikoko Rural Housing project area, namely: District Roads D1278, D1280, D1281, D1290, D1371, D2255, D2304, and D871 as indicated in the above table.





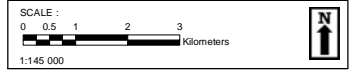
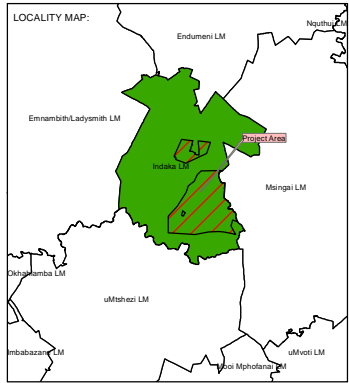
# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### ROAD NETWORK

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
Rivers and Streams	Main Road
Non - Perennial Center Line	National Road
Perennial Center Line	Provincial Road
32m Buffer of Rivers and Streams	
20m Contours	



DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (L031)

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**(iv) Numbered Local Access Roads**

There are four Local Access Roads that have been proclaimed through the project area namely the L1290, L1298, L477, and the L478.

**4.2.1.1 Implications for the Rural Subsidised Housing Project:**

The National legislated (RDP) minimum norms and standards in respect of roads in South Africa are considered to be “access to all erven with graded or gravel paved roads”. This national standard has been accepted by the Department of Housing as their minimum norms and standards for the rural housing instrument as far as road provision is concerned. It is important to note however that *no new access roads* are planned as part of the Somshoek and Esikoko Rural Housing Area’s Rural Subsidised Housing Development. Grading processes may be conducted on some existing roads as part of the proposed project in an attempt to improve the current condition of these roads within the Somshoek and Esikoko Rural Housing project area, and will therefore form part of a road maintenance programme, however such a process will not extend to the creation of any new road networks. Furthermore due to the fact that no new road networks are planned as part of the proposed development, and due to the fact that grading purposes form part of routine road maintenance the surrounding natural environment will not be adversely impacted upon.

It should also be noted that all District Roads will be allocated a 30 m road reserve, to which an additional 15 m building line will be added onto either side, while all Local Access roads will be afforded a minimum 15 m building line within which no construction activities may occur. This therefore ensures that no construction activities associated with the proposed rural housing project will result in any adverse negative impacts on the existing road network.

**4.2.2 Stormwater**

Whilst low income rural subsidised housing developments have huge budgetary constraints on the design and implementation of stormwater management and control systems, it is vitally important to dispose of stormwater as effectively and efficiently as possible. This is due to the fact that uncontrolled stormwater runoff can cause damage to property and may erode and destabilise fill and cut banks. The objectives of the stormwater management system should be as follows:

- To adequately dispose of runoff from developed areas without causing soil saturation or erosion. This is particularly important on any sites underlain by erodible soils and on steep slopes;
- To provide overland flow routes through developments to cater for major storms and thereby minimising any risk of damage to property infrastructure and other immovable assets;
- Stormwater systems should be designed to function adequately with low maintenance in the long term, and should cater for silting, etc.

#### 4.2.2.1 Implications for the Rural Subsidised Housing Project:

While the National legislated (RDP) minimum norms and standards in respect of stormwater management in South Africa is considered to be “Lined open channels” the logistics and costs involved with the implementation thereof mean that such a minimum norm and standard is not feasible for implementation as part of the Somshoek and Esikoko Rural Subsidised Housing development.

## 5 BIO-PHYSICAL COMPONENT

### 5.1 LAND COVER AND TOPOGRAPHY

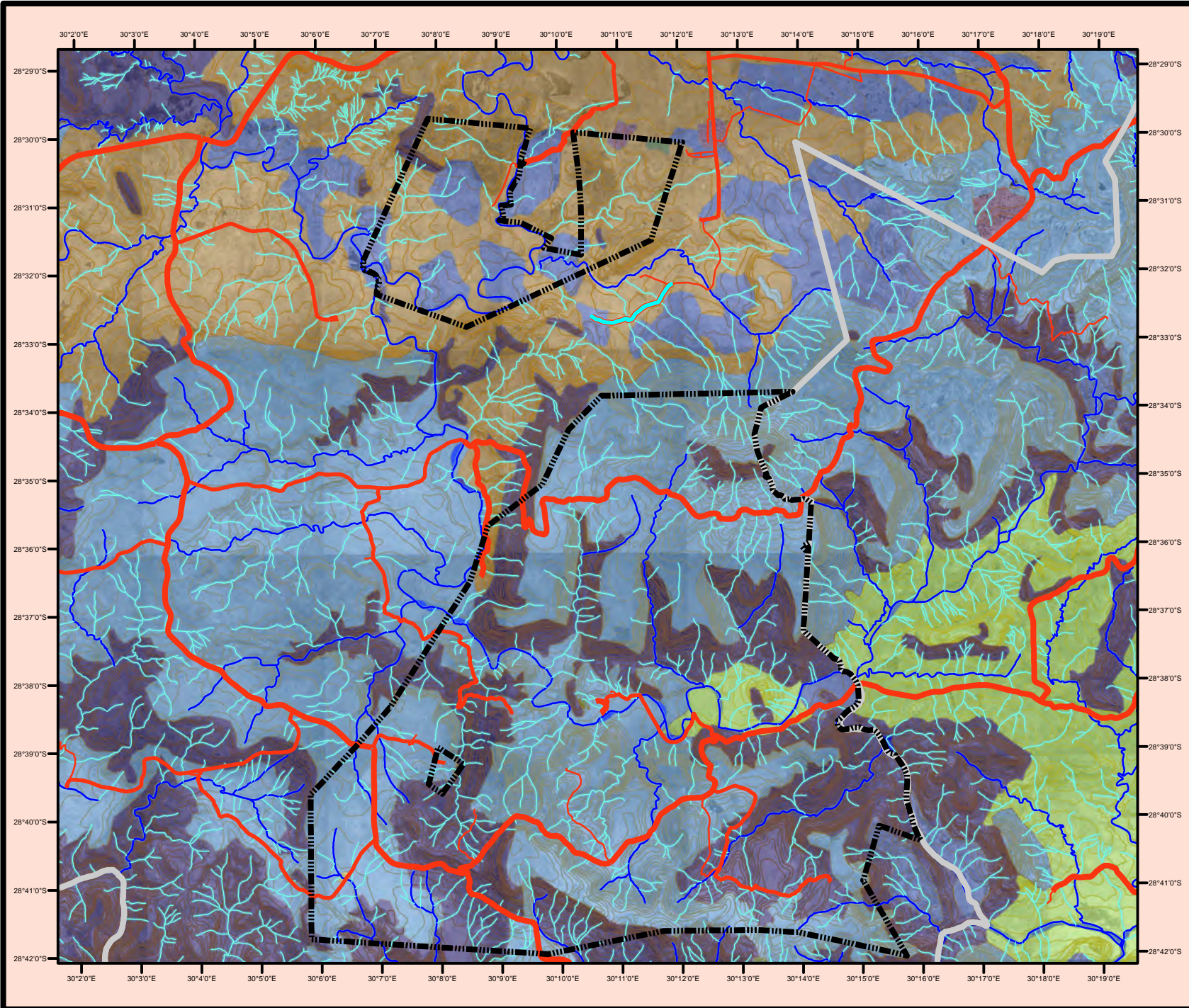
The overall land cover within the study area is summarized in Table 5.1 below and graphically depicted on the attached thematic map. The dominant land cover within the study area is described as “Unimproved grassland” and covers approximately 45.27% of the total land area of the Somshoek and Esikoko Rural Housing project area. This type of land cover is abundant on the northern, southern, and central parts of the project area.

The “Thicket & bushland” land cover type accounts for 25.21% of the total surface of the project area and mostly occurs in the central and southern parts of Sithole, Mthembu and Ingwe Traditional Authorities (TA) area. The “Degraded: unimproved grassland” land cover type accounts for 19.4% of the total project area and occurs mostly in the northern part of the project area. Other land cover types occur within the project area but at relatively low volumes as indicated in Table 5.1 below. A land cover thematic map is attached to give a visual illustration of the distribution of the various land covers discussed above and listed in Table 5.1 below.

**Table 5.1: Land Cover**

Land Cover	Area	Percentage
Cultivated: temporary - commercial dryland	21.88	0.08%
Cultivated: temporary - semi-commercial/subsistence dryland	2177.03	8.06%
Degraded: thicket & bushland	468.30	1.73%
Degraded: unimproved grassland	3642.51	19.40%
Dongas & sheet erosion scars	20.64	0.08%
Thicket & bushland	4812.15	25.21%
Unimproved grassland	8233.20	45.27%
Urban / built-up land: residential	30.80	0.11%
Waterbodies	16.60	0.06%
<b>Total</b>	<b>19 419.8.12</b>	<b>100.00%</b>

Source: LANDSAT Landcover



# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

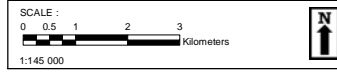
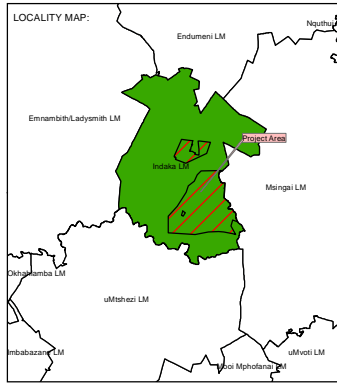
### LAND COVER

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
Rivers and Streams	Main Road
Non - Perennial Center Line	National Road
Perennial Center Line	Provincial Road
32m Buffer of Rivers and Streams	20m Contours

**Land Cover**

- Cultivated: temporary - commercial dryland
- Cultivated: temporary - semi-commercial/subsistence dryland
- Degraded: thicker & bushland (etc)
- Degraded: unimproved grassland
- Damaged & steep erosion scars
- Thicket & bushland (etc)
- Unimproved grassland
- Urban / built-up land: residential
- Waterbodies



DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (L031)

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The overall topography of the study area is summarized in Table 5.2 below and clearly depicted on the attached thematic map. The slope analysis study indicates that the majority of the project area (28.59%) is characterized by flat slopes (Flatter than 1:20) and 16.76% of the area's topography has a slope character "Steeper than 1:3" while 11.67% of the area has a slope of "1:5 – 1:7.5". Appropriate planning and design principles suitable for the topography of the area and taking due cognizance of the characteristics of the area, will thus have to be applied during the detailed planning stages of the envisaged housing process. Table 5.2 below illustrates the slope analysis summary of the project area

**Table 5.2: Slope Analysis**

Slope	Area (Ha)	Percentage of Total Area
Flatter than 1:20	7724.5	28.59%
1:11 – 1:20	5529	20.46%
1:7.5 – 1:11	2211.5	8.18%
1:5 – 1:7.5	3153.25	11.67%
1:3 - 1:5	3873.25	14.36%
Steeper than 1:3	4528	16.76%
<b>Total Area</b>	<b>27019.5</b>	<b>100.00%</b>

Source: Own Calculations

## 5.2 FLOOD LINE AREAS

The Somshoek and Esikoko project area is traversed by a number of perennial and non-perennial water courses. The perennial and non-perennial streams occurring within the project area are depicted on the attached thematic map.

The noted water courses within the proposed development area, whether perennial or non-perennial, are subject to periodic flooding depending on the rainfall and subsequent runoff at any point in time, either within or upstream of the specific catchment area. Therefore, in terms of the Water Act, as well as various other applicable developmental legislation, these areas are subject to a 1:100 year flood line restriction as far as any form of formal development is concerned.

The nature of the settlement pattern and topography of the area has however resulted in most of the beneficiaries tending to settle and develop their traditional houses along hill tops, ridges,

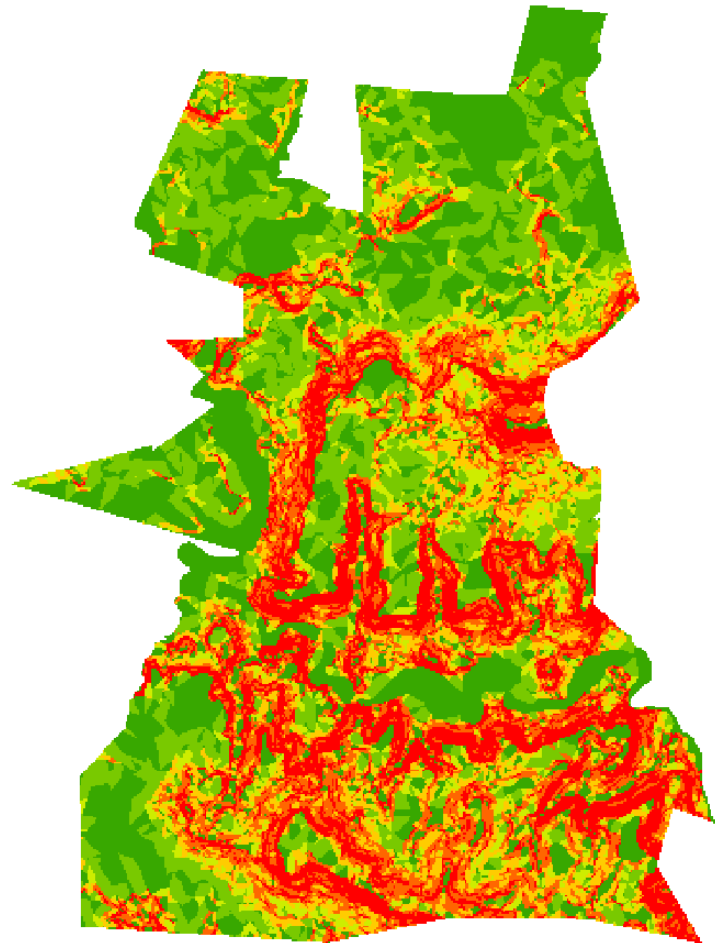
# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

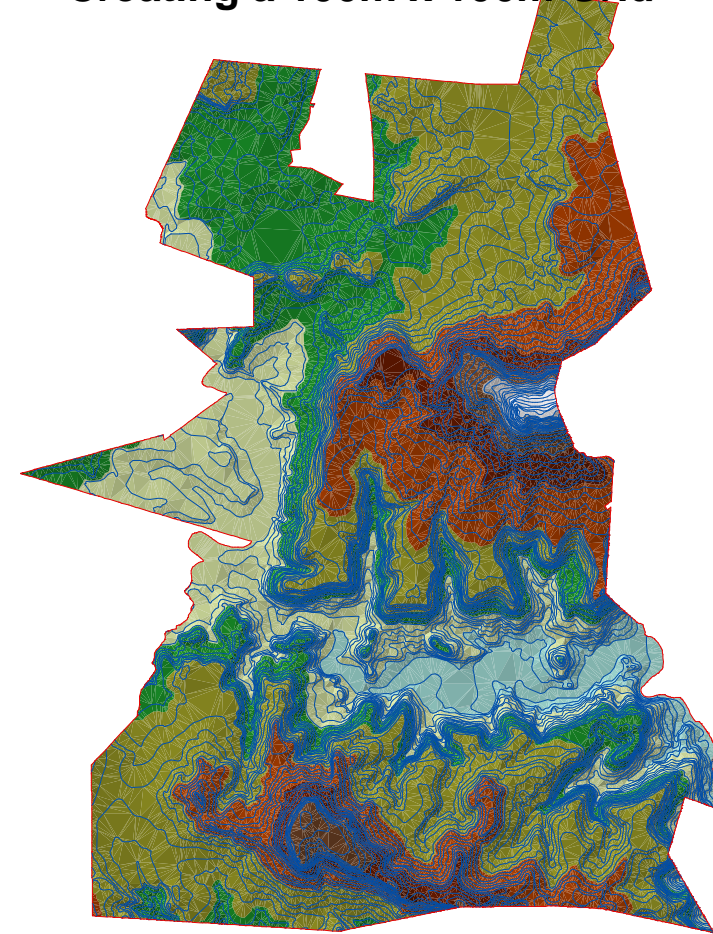
### SLOPE ANALYSIS

TOPOGRAPHY ON SITE		
CATEGORY	TYPE	AREA (Ha)
1	Flatter than 1:20	7 724.5
2	1:20 - 1:10	5 529
3	1:10 - 1:7.5	2 211.5
4	1:7.5 - 1:5	3 153.25
5	1:5 - 1:3	3 873.25
6	Steeper than 1:3	4 528

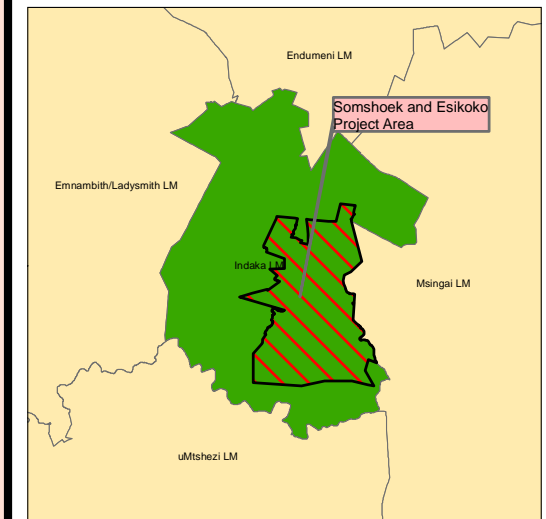
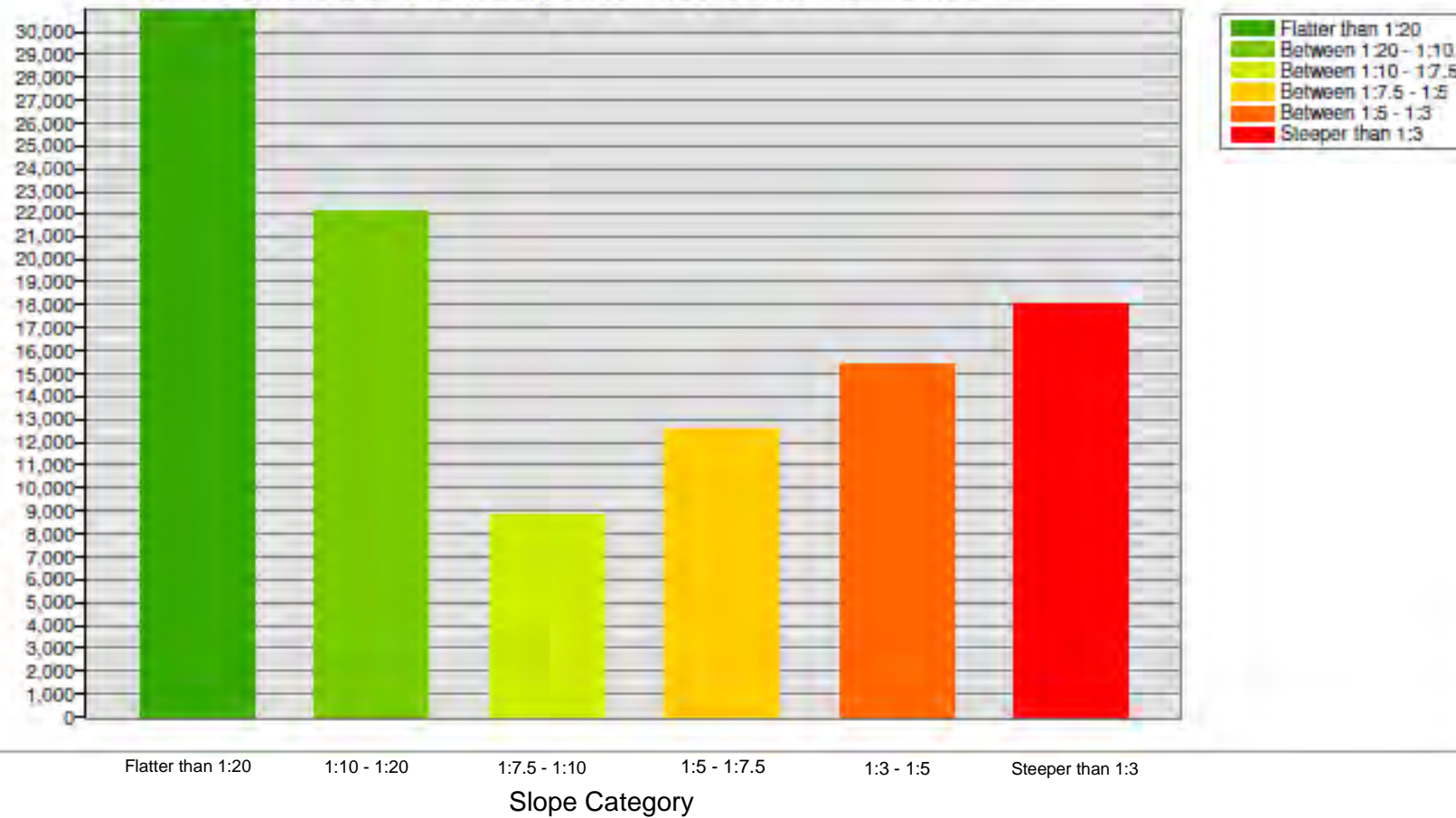
3D Tin Showing Elevation



Slope Analysis Usind 3D-Tin and Creating a 100m x 100m Grid



Histogram Graphically Depicting Slope Analysis Across the Project Area



SCALE:

Not drawn to scale



DATE : April 2013

MAP REFERENCE / VERSION NUMBER : Version 1.1

COORDINATE SYSTEM : Geographic Coordinates WGS84 (Lo31)

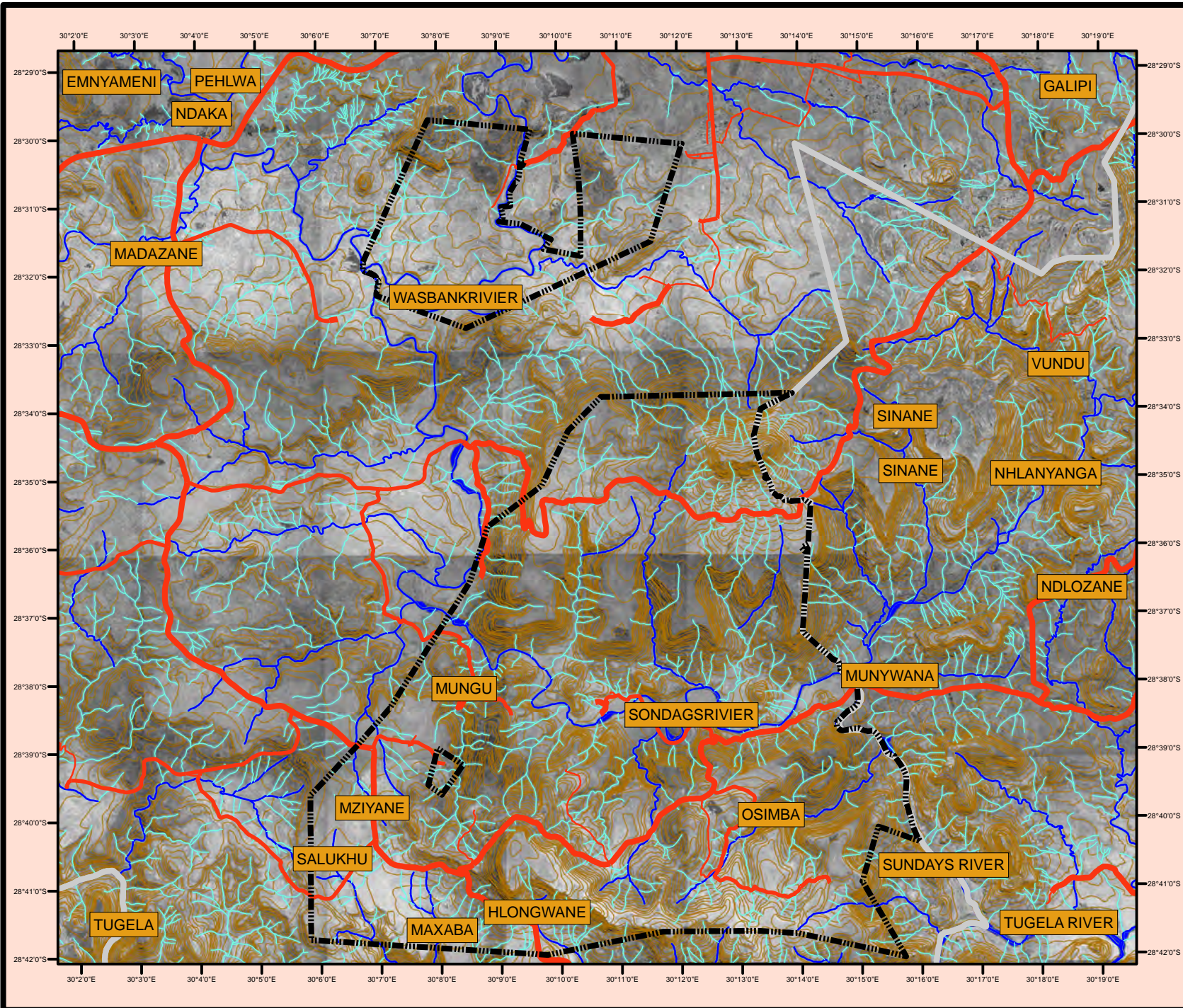
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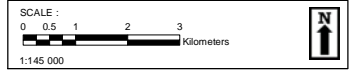
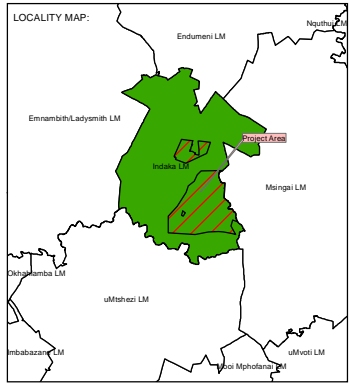
# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### RIVERS

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
20m Contours	Main Road
Rivers and Streams	National Road
Non - Perennial Center Line	Provincial Road
Perennial Center Line	
32m Buffer of Rivers and Streams	



DATE : APRIL 2013

MAP REFERENCE / VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (L031)

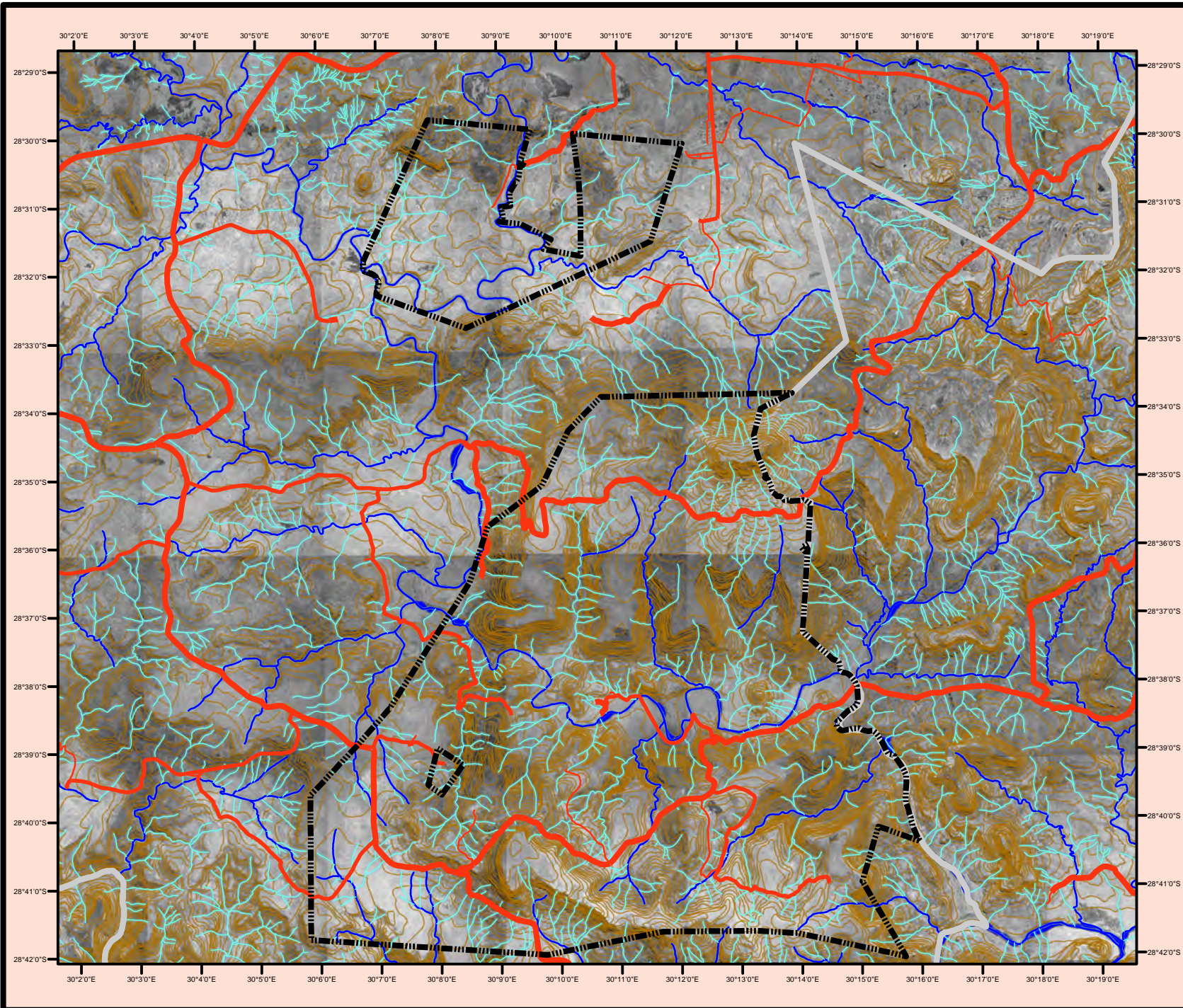
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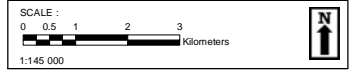
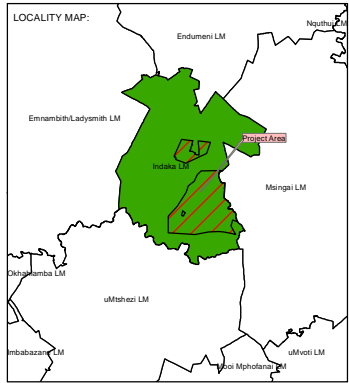
# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### 32M BUFFER OF RIVER AND STREAMS

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
20m Contours	Main Road
Rivers and Streams	National Road
Non - Perennial Center Line	Provincial Road
Perennial Center Line	
32m Buffer of Rivers and Streams	



DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

COORDINATE SYSTEM : Municipal WGS84 (L031)

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saddles and valley lines, etc. Furthermore, in some instances, households have been handed down from one generation to the next, and therefore it is unlikely that a large number of these shelters would be located within areas conducive to periodic flooding. All new households to be constructed as part of the proposed development will however be located outside of the 1:100 year floodline, and where this 1:100 year floodline is not known, all new household structures will be located at least 32 m's away from the bank of any river, wetland or stream. This 32 m default floodline area has been demarcated on the attached thematic map.

### 5.3 SOIL DESCRIPTION, POTENTIAL AND DEPTH

As indicated in Table 5.4 below and on the attached thematic map, eight soil types occur within the Somshoek and Esikoko Rural Housing project area. The dominant soil in the project area can be described as "Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils" which underlies approximately 42.56% of the total project area, and is located across the project area; predominantly occurring in the northern, central, and southern extents of the Somshoek and Esikoko Rural Housing the project area. The second most abundant soil type in the project area is the "Glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape" soil forms which cover the approximately 19.22% of the total surface of the project area; these soils occur on the north – west, central and western portion of the project area. The third most prominent soil in the project area is known as "One or more of; vertic, melanic, red structured diagnostic horizons, undifferentiated." soil and account for 12.01% of the project area. These soils occur in the central and south - western part of the project area.

**Table 5.4: Soils**

Soils	Area	Percentage
<sup>o</sup> Glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape	3193.24	19.22%
<sup>r</sup> Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in the entire landscape	3004.03	11.12%
<sup>e</sup> Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils	8501.29	42.56%
Miscellaneous land classes, rocky areas with miscellaneous soils	621.28	2.30%
<sup>k</sup> One or more of: vertic, melanic, red structured diagnostic horizons, undifferentiated	2246.41	12.01%
<sup>N</sup> Plinthic catena: undifferentiated, upland duplex and/or marginalitic soils common	2028.38	11.21%
Red-yellow apedal, freely drained soils; red and yellow, dystrophic and/or mesotrophic	302.69	1.12%
Red-yellow apedal, freely drained soils; red, dystrophic and/or mesotrophic	125.82	0.47%
<b>Total</b>	<b>19 419.8</b>	<b>100.00%</b>

Source: Environmental Potential Atlas

The implication of the soil descriptions outlined above together with the other influencing physical factors from an agricultural point of view are depicted in Table 5.5 and graphically portrayed on the attached thematic map. The soil potential of the predominant soils within the study area are described as “Soils not suitable for arable agriculture; suitable for forestry or grazing where climate permits”, which underlie approximately 71.68% of study area, these soils are distributed over the northern down to the southern part of the project area but are only absent in the north - eastern and south - western parts. The second most dominant soil potential can be described as “Soils of poor suitability for arable agriculture where climate permits” which account for 11.21%. Table 5.5 below depicts the soil potential distribution within the Sithole, Mthembu and Ingwe TA project area.

**Table 5.5: Soil Potential**

Soil Potential	Area	Percentage
No dominant class	2047.60	7.58%
Not suitable for agriculture or commercial forestry; suitable for conservation, recreation or water catchments	621.27	2.30%
Soils highly suited to arable agriculture where climate permits	137.68	0.51%
Soils not suitable for arable agriculture; suitable for forestry or grazing where climate permits	12371.10	71.68%
Soils of intermediate suitability for arable agriculture where climate permits	1817.11	6.72%
Soils of poor suitability for arable agriculture where climate permits	3028.40	11.21%
<b>Total</b>	<b>19 419</b>	<b>100.00%</b>

Source: KZN Environmental Potential Atlas

The approximate depths of the various soil types occurring across the Somshoek and Esikoko Rural Housing project area are depicted on the attached thematic map and indicated in Table 5.6

below. The information provided indicates that the soil depths of the various spoil types of project area range from 0 mm to more than 750 mm.

**Table 5.6: Soil Depth**

Soil Depth	Area	Percentage
< 450mm	10151.50	59.77%
>750mm	2047.59	7.58%
450mm - 750mm	7824.03	32.65%
Total	19023	100.00%

Source: KZN Environmental Potential Atlas

## 5.4 GEOLOGY

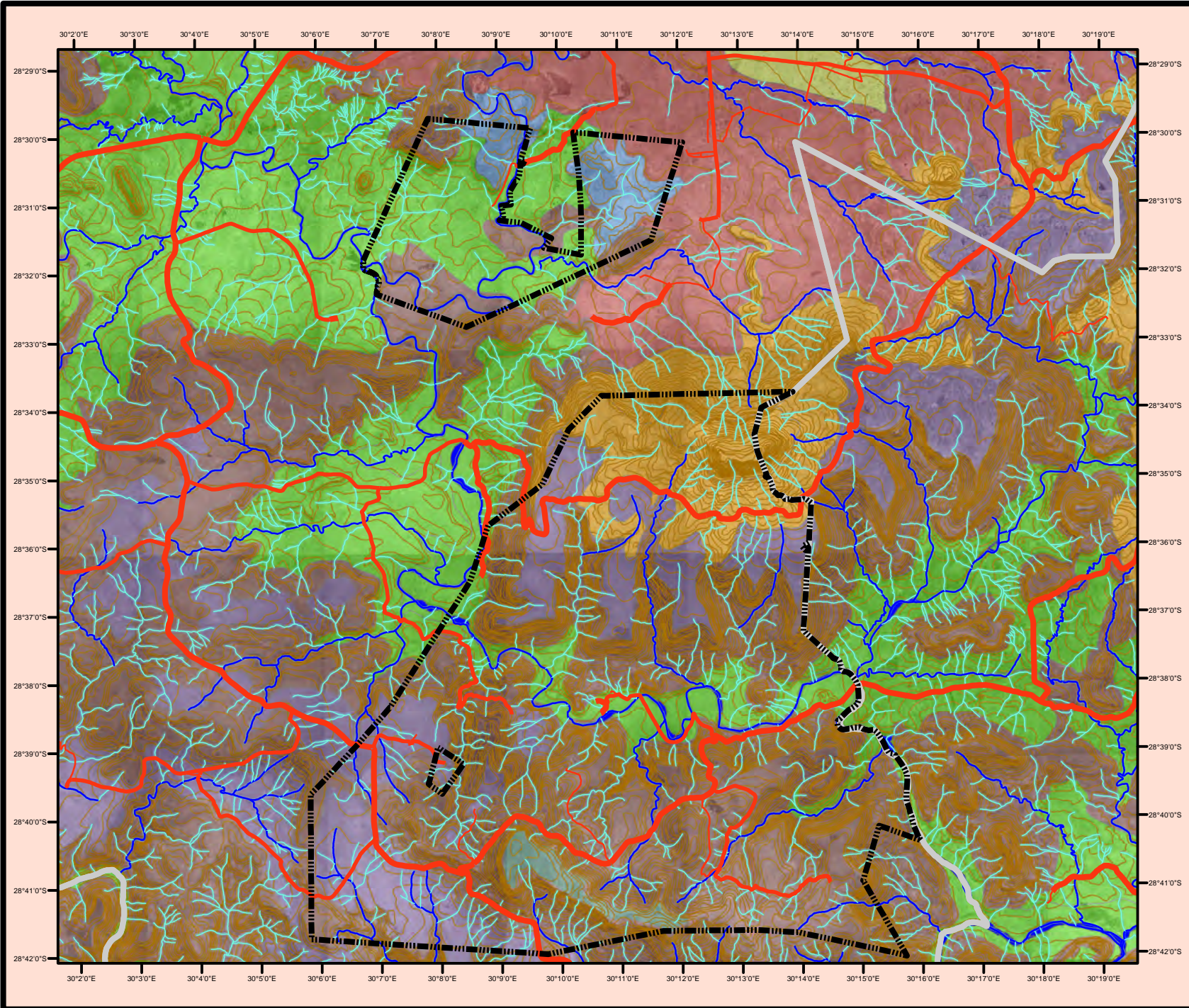
Table 5.7 below depicts the geological characteristics of the Somshoek and Esikoko Rural Housing project area; this geological overview gives an overall description of the various geological formations of the area. The area is underlain by four distinct rock types, the dominant type is known as Arenite (69.79). The second most dominant type is "Dolerite" which account for 15.19%. The third most dominant rock type is "Shale" which covers 14.31% of the project area.

**Table 5.7: Geology**

GEOLOGY	Area	Percentage
ARENITE	10859.42	69.79%
DOLERITE	5104.57	15.19%
MUDSTONE	192.48	0.71%
SHALE	3466.64	14.31%
Total	19 023.1	100.00%

Source: KZN Environmental Potential Atlas

More detailed information on the geotechnical conditions of the study area is contained in a preliminary geotechnical report. This report indicates the physical implications and impact of these geotechnical conditions on overall development.



# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

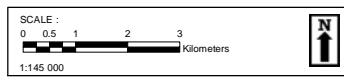
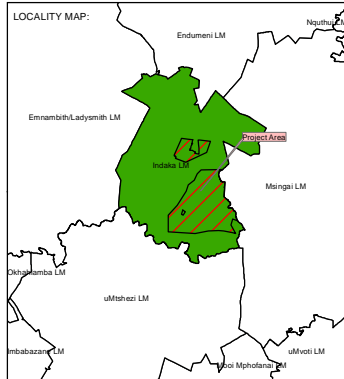
### SOILS

**Legend**

	<b>Project Area</b>		<b>Road Network</b>
	<b>Local Municipal Boundaries</b>		<b>Local Access Road</b>
	<b>Rivers and Streams</b>		<b>Main Road</b>
	<b>Perennial Center Line</b>		<b>National Road</b>
	<b>32m Buffer of Rivers and Streams</b>		<b>Provincial Road</b>
	<b>20m Contours</b>		

**Soils**

- Greenish and/or Mispah loams (other soils may occur), fine generally present in the entire landscape
- Greenish and/or Mispah loams (other soils may occur), fine rare or absent in the entire landscape
- Greenish and/or Mispah loams (other soils may occur), fine rare or absent in upland soils but generally present in low-lying soils
- Mechanically light (sandy), soils with micaceous soils
- One or more of calcic, molic, red structured diagnostic horizons, undifferentiated
- Podolic, calcare, undifferentiated, uppermost duplex and/or terragic soils common
- Reddish-brown sandy, heavy drained soils, not red yellow, orthic and/or mesogleptic
- Reddish-brown sandy, heavy drained soils, red, dystrophic and/or mesogleptic



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MAP REFERENCE/ VERSION NUMBER : Version 1

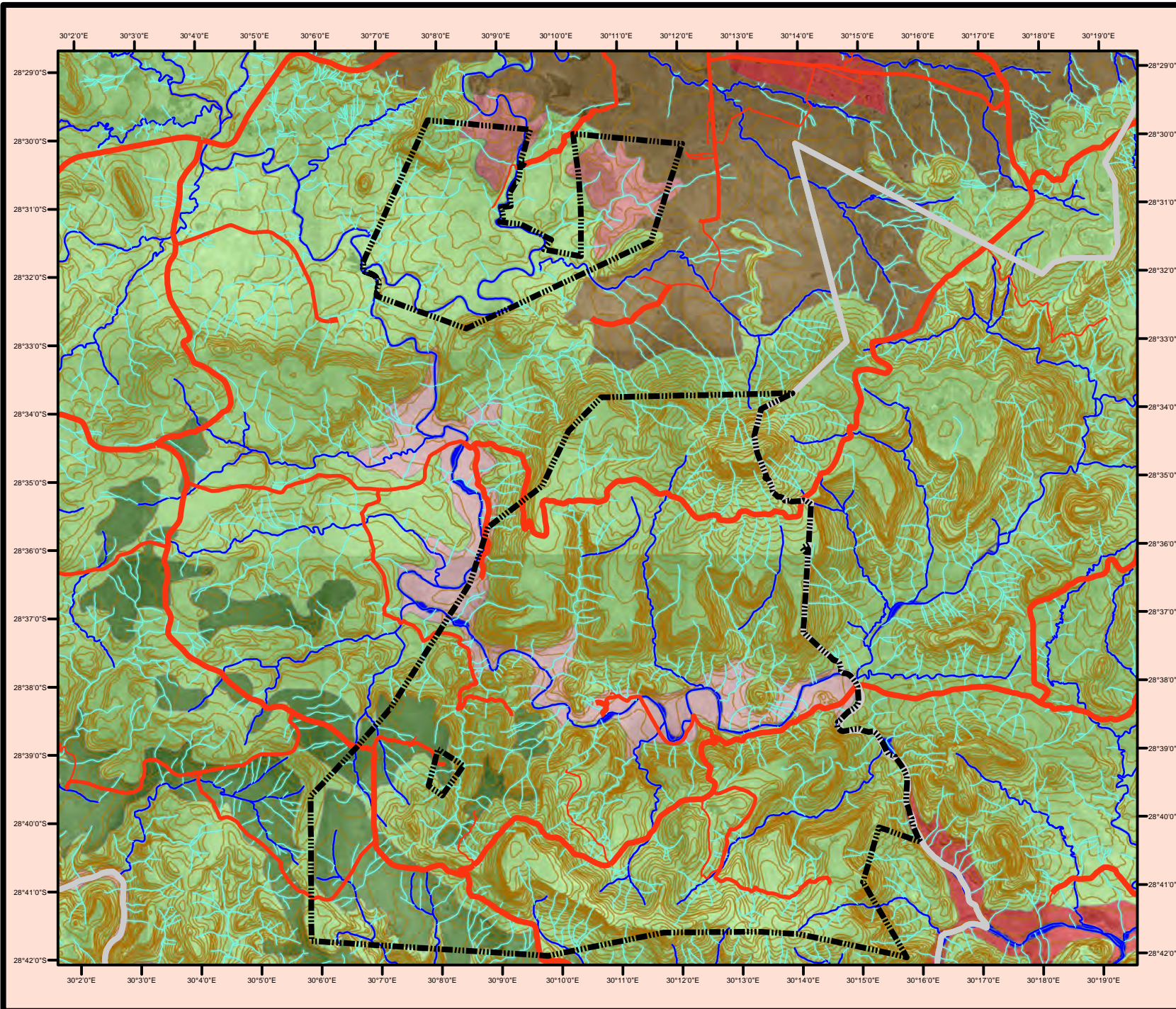
COORDINATE SYSTEM : Municipal WGS84 (L031)

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# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

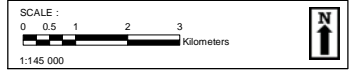
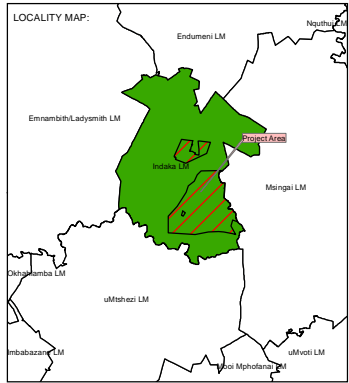
### SOIL POTENTIAL

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
Rivers and Streams	Main Road
Non - Perennial Center Line	National Road
Perennial Center Line	Provincial Road
32m Buffer of Rivers and Streams	20m Contours
20m Contours	

**Soil Potential**

	No dominant class
	Not suitable for agriculture or commercial forestry; suitable for conservation, recreation or water catchments
	Suits highly suitable for arable agriculture where climate permits
	Suits not suitable for arable agriculture; suitable for forestry or grazing where climate permits
	Suits of intermediate suitability for arable agriculture where climate permits
	Suits of poor suitability for arable agriculture where climate permits



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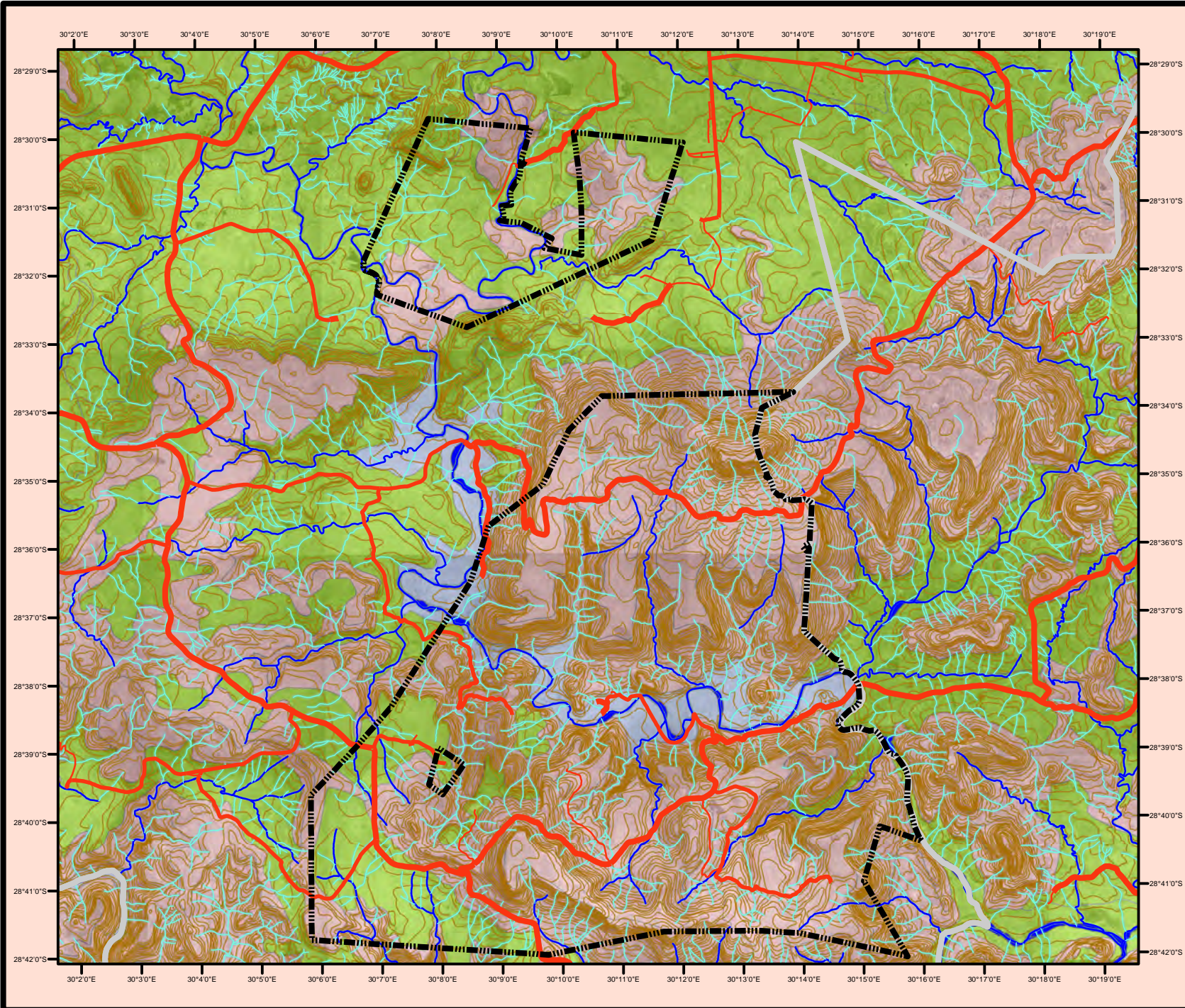
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# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### SOIL DEPTH

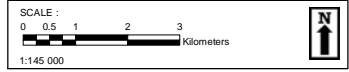
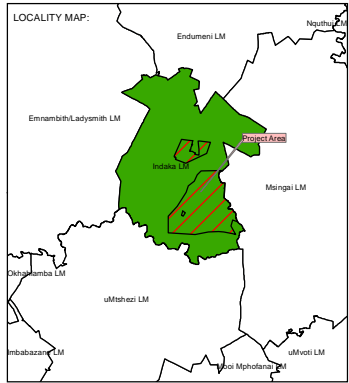
**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
Rivers and Streams	Main Road
Non - Perennial Center Line	National Road
Perennial Center Line	Provincial Road
32m Buffer of Rivers and Streams	20m Contours

**Soil Depth**

	< 450mm
	450mm - 750mm
	> 750mm



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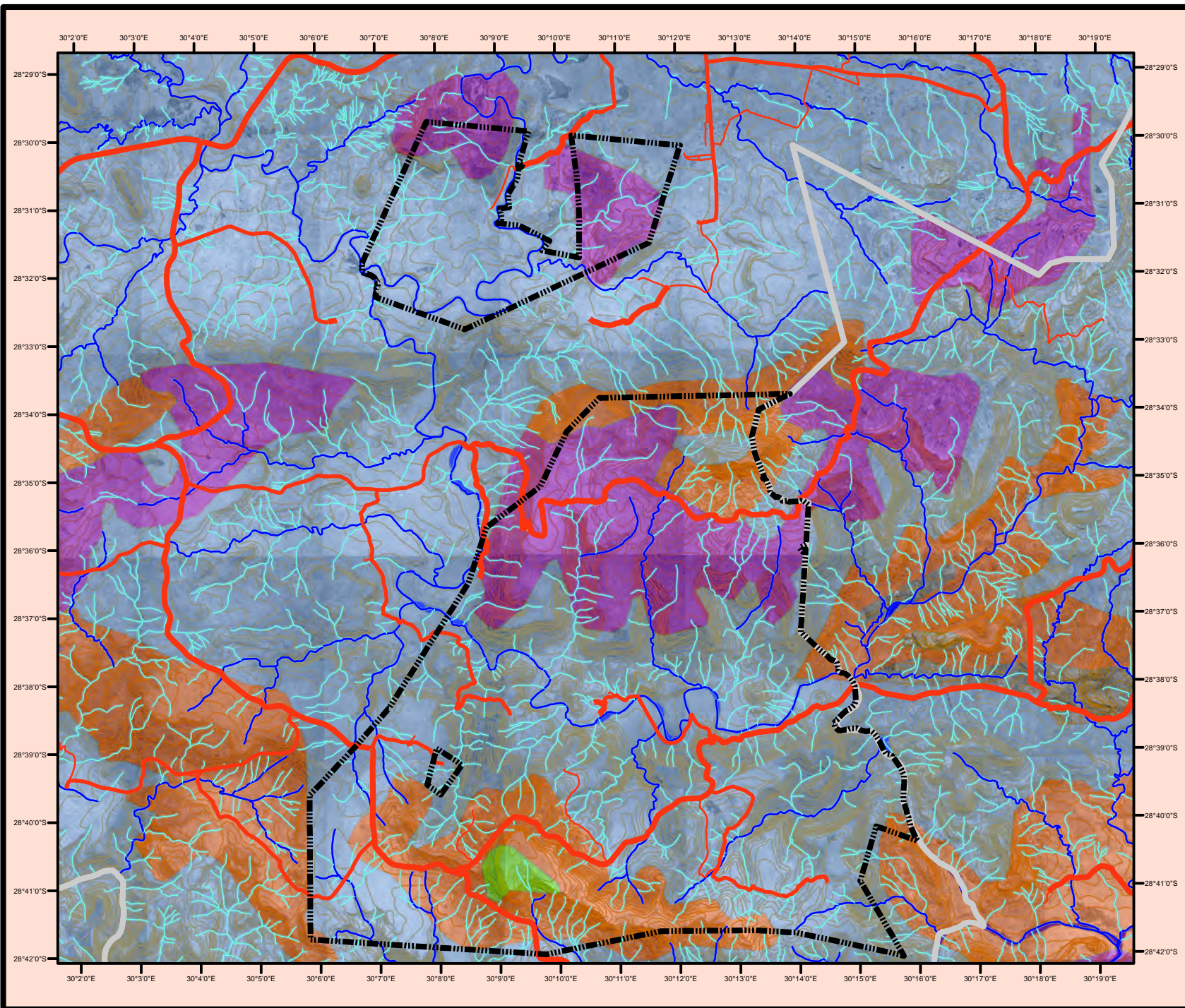
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# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

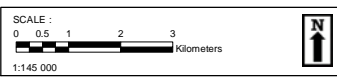
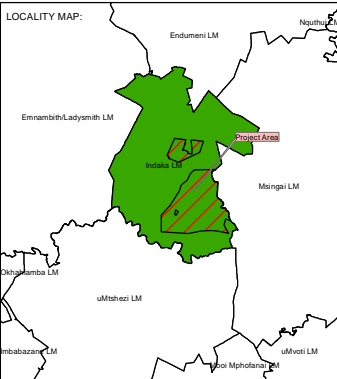
### GEOLOGY

**Legend**

Project Area	District Road
Local Municipal Boundaries	Local Access Road
Rivers and Streams	Main Road
Non - Perennial Center Line	National Road
Perennial Center Line	Provincial Road
32m Buffer of Rivers and Streams	
20m Contours	

**Geology**

ARENITE
DOLERITE
MUDSTONE
SHALE




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## 5.5 VEGETATION

The Somshoek and Esikoko Rural Housing project area is characterised by five vegetation types which account for the whole project area. Table 5.8 below indicates that the most dominant vegetation type is known as “Thukela Thornveld” and account for 38.77% of the Somshoek and Esikoko project area. The second most dominant vegetation type is known as “Income Sandy Grassland” and account for 26.18% of the project area. The vegetation type discussed above are indicated in table 5.5 below and on the attached thematic map.

**Table 5.8: Vegetation**

Vegetation	Area	Percentage
Income Sandy Grassland	5074.00	26.18%
Low Escarpment Moist Grassland	728.79	2.70%
Northern KwaZulu-Natal Moist Grassland	2790.48	10.33%
Thukela Thornveld	6475.85	38.77%
Thukela Valley Bushveld	3953.99	22.03%
<b>Total</b>	<b>19419.8</b>	<b>100.00%</b>

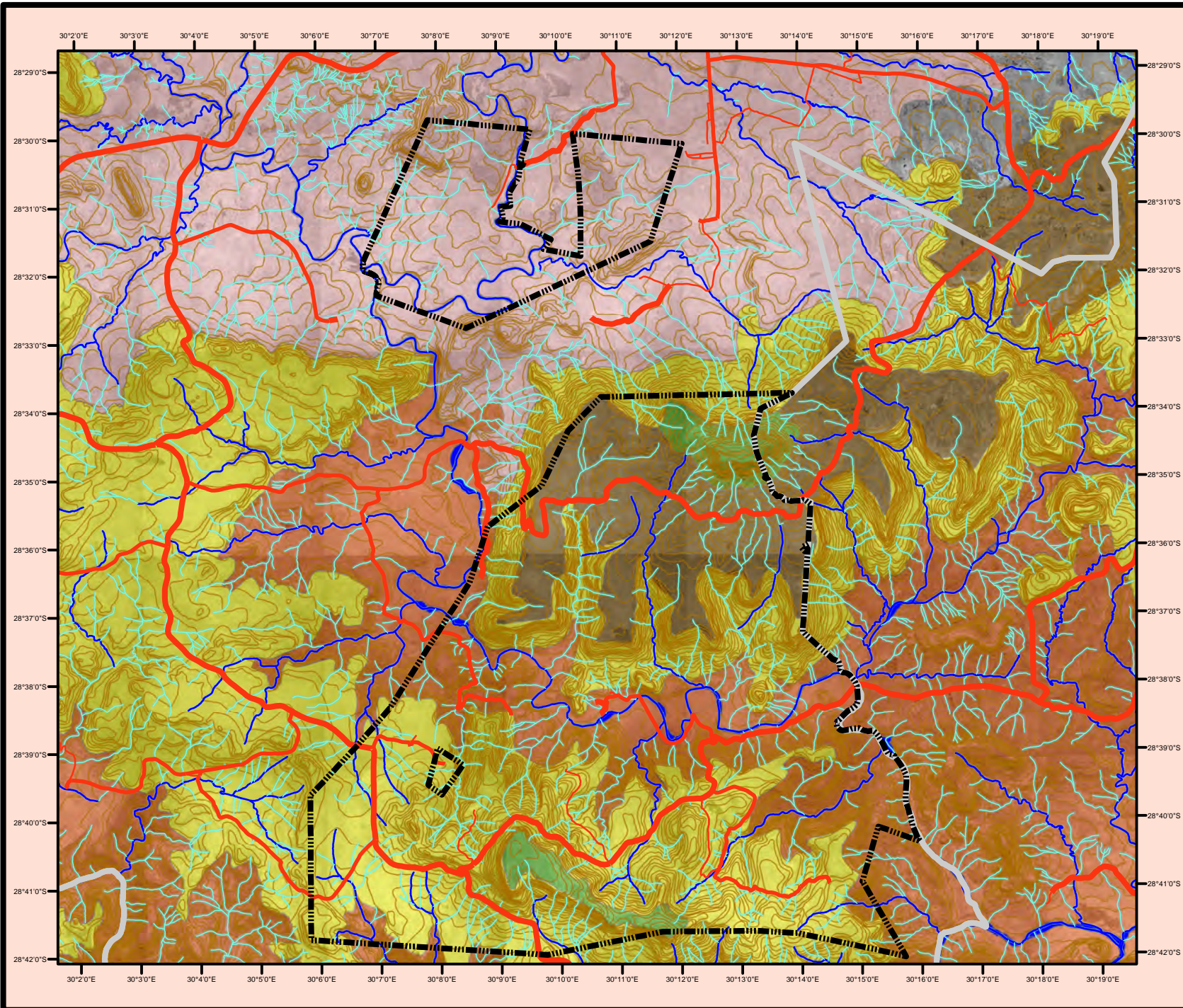
Source: Muchina and Rutherford, 2006

The major vegetation unit which occur across the Somshoek and Esikoko Rural Housing project area are discussed in further detail under their respective heading below.

### 5.5.1 Thukela Thornveld (Musina & Rutherford, 2006)

This Type of vegetation can be located in the KwaZulu-Natal Province: Upper Thukela River basin fringing the Thukela Valley Bushveld on its upper border in a series of discontinuous patches. Largest area east of Estcourt-Colenso and including Ladysmith. Also some outliers on slopes south of Dundee and the Altitude varies between 900-1 300 m.

The vegetation and landscape features can be described as the dominant landscape features are *valley* slopes to undulating hills. Vegetation is *Acacia* dominated bushveld of variable density (ranging from wooded grassland to dense thickets) with dense grassy undergrowth.



# INDAKA LOCAL MUNICIPALITY

## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### VEGETATION

**Legend**

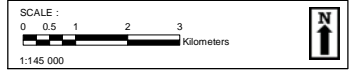
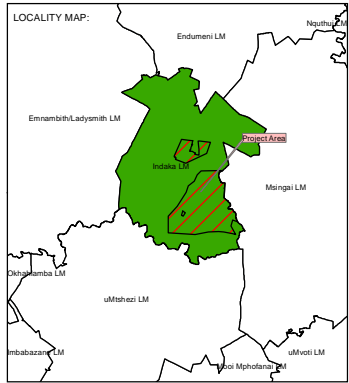
Project Area	District Road
Local Municipal Boundaries	Local Access Road

**Rivers and Streams**

Non - Perennial Center Line	Main Road
Perennial Center Line	National Road
32m Buffer of Rivers and Streams	Provincial Road
20m Contours	

**Vegetation**

Income Sandy Grassland
Low Escarpment Moist Grassland
Northern KwaZulu-Natal Moist Grassland
Thukela Thornveld
Thukela Valley Bushveld



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The geology and soils can be characterised as a broad variety of soils ranging from vertisols and solodised solonetzic soils to transitional fersiallitic soils (Edwards 1967) developing over Karoo Supergroup sediments of the Beaufort and Ecca Groups). Heavy soils are developed over Jurassic dolerite intrusions forming koppies and sills.

The climate includes a summer rainfall with dry summers. Yearly rainfall about 550-850 mm. Frost fairly infrequent occurring mainly on the flats. Mean monthly maximum and minimum temperatures for Ladysmith 36.1 °C and -3.6°C for January and July, respectively.

The conservation can be seen as least threatened with a target of 25%. Statutorily *conserved* (less than 1 500 ha) in Weenen Game Reserve and Isandlwana Nature Reserve. About 5% already transformed, mainly by cultivation. Erosion somewhat less than in Thukela Valley Bushveld.

### 5.5.2 Income Sandy Grassland (Musina & Rutherford, 2006)

The Income Sandy Grassland can be found in the KwaZulu-Natal Province: In a large triangle between Newcastle, Vryheid, and Dundee and larger polygon in the Wasbank area in northern KwaZulu-Natal at an altitude of between 880- 1 340 m (mainly 1 120- 1 240 m).

The vegetation and landscape features can be characterised as very flat extensive areas with generally shallow, poorly drained, sandy soils supporting low, tussock-dominated sourveld forming a mosaic with wooded grasslands (with *Acacia sieberiana* var. *woodii*) and on well-drained sites with the trees *A. karroo*, *A. nilotica*, *A. caffra* and *Diospyros lycioides*. On disturbed sites *A. sieberiana* var. *woodii* can form sparse woodlands. *Aristida congesta*, *Cynodon dactylon* and *Microchloa caffra* are common on shallow soils (Camp 1999c).

The geology and the soils are sandstones and shale of the Madzaringwe Formation (Ecca Group of Karoo Supergroup) supporting poorly drained sandy soils, mostly of the Glenrosa form.

The Income Sandy Grassland vegetation type can be described as a region of summer rainfall, with most precipitation occurring between October and March (overall MAP 750 mm; range 650- 800 mm), much of which falls as thundershowers often accompanied by hail. MAT is just below 11 degrees Celsius and mean annual evaporation 1 845 mm. Frost moderate.

The conservation can be described as vulnerable with a target of 23%. None conserved in statutory conservation areas. Some 27% has been transformed for cultivation, plantations and by urban sprawl. Small portion of the area has been lost to the building of dams (Klipfontein, Mvunyane). No serious invasions of aliens have been observed (probably due to low nutrient status of soils). Erosion moderate (38%), high (30%) and low (15%).

### 5.5.3 Thukela Valley Bushland (Musina & Rutherford, 2006)

This type of vegetation is can be found primarily in the KwaZulu-Natal Province: Central Thukela River basin upstream of Jameson's Drift, past Tugela Ferry to about 20 km southeast of Ladysmith. Also in valleys of several major tributaries, such as the lower Mooi, Bushmans, Buffels and Sundays Rivers. At an altitude of about 350 - 1 000 m.

The vegetation and landscape features can often be described as rocky rugged slopes and terraces mainly with deciduous trees of short to medium height (and many large shrubs) including *Acacia tortilis*, *A. nilotica* and *A. natalitia* and prominent evergreen species such as *Olea europaea* subsp. *africana*, *Boscia albitrunca* and *Euclea crispa* in places. Succulent plants, mainly species of *Euphorbia* and *Aloe* occur on shallow and eroded soils. Relatively limited areas are dominated by succulents such as *E. tirucalli* (some hillsides south of the Thukela) and *E. ingens* on steep slopes, but also commonly on the valley floor.

The geology and soils are shallow soils of Mispah and Glenrosa forms on the slopes, while in valley bottoms, pockets of deep alluvial soils as well as calcareous, duplex soils are found. The major geological formations are sediments of Ecca Group (Karoo Supergroup) and in the eastern part also Archaean granites.

The Thukela Valley Bushland vegetation type has a summer rainfall with dry winters. MAP about 500-850 mm. Frost fairly infrequent and usually on valley bottoms. Mean monthly maximum and minimum temperatures for Muden 36.0°C and 0.2°C and for Weenen 38.1°C and -4.4°C both for December and June, respectively.

The conservation can be described as least threatened with a target of 25%. Statutorily conserved (less than 200 ha in the Weenen Game Reserve. This vegetation unit has undergone considerable degradation over almost its entire area. In the many eroded areas, prolonged continuous overgrazing has led to the complete destruction of the grass cover. Often the only ground cover is

found under *Acacia tortilis* trees where their root systems retain soil, the trees act as nutrient pumps and provide shade (Camp 1999). EroSion very variable, ranging from very low to very high. Alien plants include the widely scattered *Opuntia imbricata*.

## 5.6 EZEMVELO KZN CONSERVATION PLAN

South Africa has ratified the International Convention on Biological Diversity, which commits the country, including KwaZulu-Natal, to develop and implement a strategy for the conservation, sustainable use and equitable sharing of the benefits of biodiversity. This requires Provincial Authorities together with the Department of Environment and Tourism, to compile and implement a 'Bioregional Plan' for the province that ensures that a minimum area of each bioregion with all its representative ecosystems is protected. In order to address these requirements in a logical manner, KZN Wildlife in collaboration with the Development Bank of Southern Africa and the KZN Town and Regional Planning Commission has collaborated on a project which aimed to develop a systematic but flexible decision-framework for the conservation of the province's biodiversity. The project was entitled the 'Systematic Conservation Plan and Decision-Framework for KwaZulu-Natal'. The first product of the conservation planning analysis in C-Plan is an irreplaceability map of the planning area, in this case the province of KwaZulu-Natal. A low irreplaceability value indicates that many options are available for meeting the conservation targets set for each element of biodiversity that is likely to be found in the area. Conservation targets represent the amount (e.g. area or population size) required to conserve that biodiversity element in perpetuity and is determined prior to each element being included into the analysis.

The irreplaceability map for the study area indicates that the area's irreplaceability value varies from 0 to 0.2, thus indicating that portions of the Somshoek and Esikoko Rural Housing project area is considered relatively low intensity irreplaceable with regards to biodiversity (see Attached Thematic Map). The project area's biodiversity is therefore likely to be characterized as being particularly threatened or endangered characteristics, and therefore the implementation of the proposed housing project should be well planned and wary not have any adverse or negative impact on the areas biodiversity. A diverse approach to biological protection should however be adopted and implemented as part of the proposed project as part of the good practice principle and to protect any biologically diverse features which may occur within the area. **It should however be noted that the proposed rural housing development is an in-situ project and will therefore only entail the construction of houses within existing homestead/iMuzi areas and will therefore**

# INDAKA LOCAL MUNICIPALITY

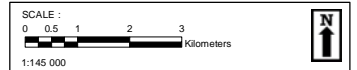
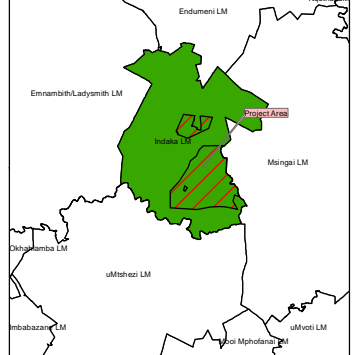
## SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING DEVELOPMENT

### IRREPLACEABILITY

#### Legend

- |                           |   |  |                          |
|---------------------------|---|--|--------------------------|
|                           | <b>Project Area</b>                     |  | <b>Road Network</b>      |
|                           | <b>Local Municipal Boundaries</b>       |  | <b>Local Access Road</b> |
| <b>Rivers and Streams</b> |   |  | <b>Main Road</b>         |
|                           | <b>Non - Perennial Center Line</b>      |  | <b>National Road</b>     |
|                           | <b>Perennial Center Line</b>            |  | <b>Provincial Road</b>   |
|                           | <b>32m Buffer of Rivers and Streams</b> |  |                          |
|                           | <b>20m Contours</b>                     |  |                          |
| <b>Irreplaceability</b>   |   |  |                          |
|                           | 0                                       |  |                          |
|                           | 0 - 0.2                                 |  |                          |
|                           | 0 - 0.4                                 |  |                          |
|                           | 0 - 0.6                                 |  |                          |
|                           | 0 - 0.8                                 |  |                          |
|                           | 0 - 0.9                                 |  |                          |
|                           | 1                                       |  |                          |

#### LOCALITY MAP:



DATE : APRIL 2013

MAP REFERENCE/ VERSION NUMBER : Version 1

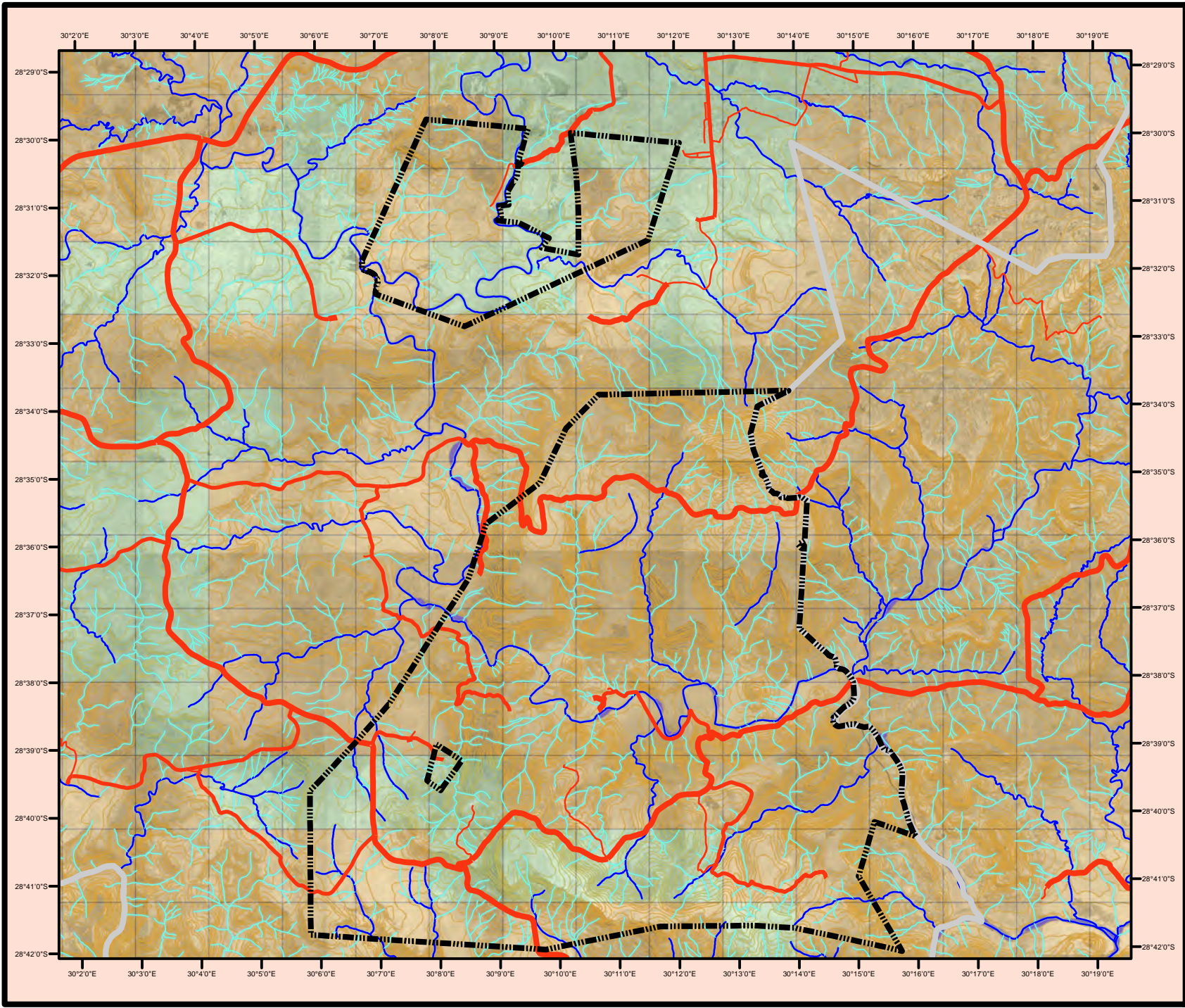
COORDINATE SYSTEM : Municipal WGS84 (L031)

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**not have a negative impact on the surrounding environment. Care should however still be taken to ensure no areas adjacent to the existing iMuzi's are impacted on.**

## **5.7 MINERAL DEPOSITS**

There are no known mineral deposits occurring within the boundary of the Somshoek and Esikoko Rural Housing project area and no known minerals occur within close proximity to the project area.

## **5.8 ARCHAEOLOGICAL, HISTORICAL AND CULTURAL SITES**

No detailed information is currently available on existing archaeological, historical or cultural sites within the boundaries of the study area. The KwaZulu Natal Heritage Act requires that Amafa Akwazulu Natali (Heritage KwaZulu Natal) is to comment on the need for an archaeological assessment for proposed development if:

- Development area is larger than 10 000m<sup>2</sup>
- Development is longer than 300m
- The development area contains known archaeological sites.

However due to the fact that the proposed project constitutes an in-situ type upgrade, it is not expected that the implementation and operation of the proposed project will result in any new adverse impacts on any archaeological, historical or cultural sites which may be present within the area. This aspect will however have to be further investigated during the environmental scoping phase and be informed by detailed land use information emanating from the planning component of the project.

## 6 EXISTING SETTLEMENT PATTERN

The project area is approximately 19 419.8 Ha's in extent and is located in the Indaka Local Municipality. The Somshoek and Esikoko project area is bordered by Ward 4 and 2 of Indaka LM to the north, Ward 2, 3 and 1 of the Indaka LM on the east, Ward 10 of Indaka LM on the south and Ward 8 of Indaka LM on the west. The project area includes land falling under the rule of three distinct Traditional Authorities namely: Sithole, Mthembu and Ingwe Traditional Authorities. The total population of the project area, as indicated in the South African Census 2011 community survey, was estimated to be approximately 21 361 person and the total number of households was estimated at 3 902 houses.

The project area's leadership with regards to the Act's mentioned above therefore have the right to allocate residential sites to members of their Traditional Authority within the proclaimed Somshoek and Esikoko Rural Housing area. Each family is then permitted to build their own houses on these allocated sites, which are referred to as "iMuzi's". These iMuzi's comprise of a combination of a number of familial homesteads which are grouped together and constructed in close proximity to one another on the same "communal" patch of land, with patches of cultivated subsistence land which are made use of for subsistence agricultural purposes which are generally located adjacent to and around the homestead areas. Due to the fact that Zulu culture permits men to have more than one wife, this iMuzi settlement pattern is beneficial with regard to polygamous families, where one male may reside in an iMuzi with his various wives and their associated families. When children of the families reach adulthood, they then generally build their own homesteads within the very same iMuzi. Alternatively however, homesteads built within the iMuzi may be passed down from one generation to the next.

Followers of traditional Zulu culture generally bury their dead within the iMuzi area. Such a practice results in residents being very reluctant to leave their traditional iMuzi areas to relocate to a new area, as their ancestors and loved ones would be left behind.

While most iMuzi's occurring within the project area had areas of land adjacent to their iMuzi which were cultivated and/or planted to be made use of for subsistence purposes, the land throughout the area is available to all its residents for communal livestock to graze on.



The project area is largely characterized by scattered medium to low density traditional rural iMuzi settlements. While homesteads incorporating a mix of round and rectangular structures constructed making use of both traditional (mud brick, wattle and daub, thatch roof) and more modern (cement grouted concrete blocks and corrugated iron roof) materials and techniques were observed within the project area, the vast majority of the homesteads encountered were of a traditional nature comprising of traditional homesteads constructed making use of traditional materials and traditional techniques.

The spatial distribution of households across the area seems to be determined by a number of influencing factors which will be discussed accordingly below:

- The settlement pattern across the project area to a large extent correlates with the existing Provincial and District Road network that provide access to the project area.
- Another important influencing factor regarding the spatial distribution of residents relates to the terrain of the Somshoek and Esikoko Rural Housing Project area. The GIS spatial analysis study on the slope of the terrain within the project area indicated that the majority of the project area (28.59%) landscape is characterized by flat slopes (Flatter than 1:20) and 16.76% of the area has topography with a slope character “Steeper than 1:3” while 11.67% of the area has a slope of “1:5 – 1:7.5”. Due to the traditional methods used in the construction of homesteads, and the difficulty associated therewith, the majority of residents residing within the Somshoek and Esikoko Rural Housing project area have developed their iMuzi’s in easier accessible areas, with only a small proportion opting for areas characterized by steeper slopes.
- A number of perennial and non-perennial river and stream networks traverse the project area. Aspects such as river networks are an influencing factor with regards to the settlement distribution of the project areas homesteads. Whereas previously the area may not have been adequately catered to with regards to water services and water infrastructure, residents would have traditionally relied predominantly on rivers and streams for their water needs. Such a notion is reflected as recently as 2011, in the 2011 South African Census which depicted approximately 50.76% of the total Somshoek and Esikoko Rural Housing project area households as being reliant on untreated water from rivers and streams for their water needs. Historically, residents’ dependence on water obtained from rivers and streams located within the area would have been an influencing factor with regards to their households’ location. Households would therefore be located within close

enough proximity to nearby rivers and streams but predominantly outside of low-lying, flat areas which may have been characterized by periodic flooding.

The spatial distribution of project areas households is therefore influenced by a number of cultural, historical and natural features. It is important to note however that the spatial distribution of beneficiaries may pose a limiting factor with regards to the implementation of the proposed project. Those households which are located on steep slopes for example may be excluded from the beneficiary list for the project. Furthermore, due to the Zulu culture regarding the burying of one's deceased family members within the iMuzi area may result in households being reluctant to move in order to benefit from the proposed project and such households may also be excluded from the proposed project. Similarly due to legislative constraints, those households which are located within the stipulated 32 m buffer of all rivers, wetlands and streams will also be omitted from the Somshoek and Esikoko Rural Subsidised Housing development. The proposed projects "in-situ" type nature therefore implies that the existing settlement plan and spatial distribution of households may have repercussions with regards to the implementation of the proposed project. Such a notion would therefore require greater attention during the implementation phase of development. The "in-situ" type nature of the development is however very beneficial from an environmental perspective, this is due to the fact that the only construction activities associated with the project would occur within already established iMuzi's, and therefore no new/additional areas will be impacted upon as a result of the implementation and operation of the Somshoek and Esikoko Rural Subsidised Housing development.

## 7 CONCLUSIONS AND RECOMMENDATIONS

As indicated in the Introduction and Background to this report, the exact extent of the housing project in terms of the application of the subsidies for the purposes outlined in the housing code, and the exact spatial location and distribution of beneficiaries within the broader study area are currently not specified. What is however known is that the total number of households in need of housing (including those residing in traditional houses constructed of traditional materials, backyard structures or informal structures) is approximately 68.4%. The purpose of this preliminary assessment is thus to provide a brief overview of the social, economic, biophysical and infrastructural characteristics of the broader area within which this total estimated housing need will have to be addressed.

### 7.1 SOCIO-ECONOMIC ASPECTS

A number of important aspects and recommendations relating to the **socio-economic characteristics** of the study area include:

- Approximately 74.3% of the total population of the study area is younger than 19 years of age. This implies two important aspects as far as the development and implementation of the proposed housing project is concerned:
  - Sufficient and appropriate education facilities according to accepted national norms and standards will have to be provided.
  - A large number of people will be entering the economically active age category over the next five to ten years and will thus be seeking appropriate employment opportunities.
- The study area is characterized as being female dominated with the majority of approximately 56% of the project area's total population being represented by females. Measures with which to ensure gender equality will thus have to be implemented as part of the proposed projects development phase.
- The study area is characterized by fairly low levels of literacy with approximately 32.4% of the population of the study area older than 20 years of age not having received any form of

schooling. In terms of overall project development and management it is important to ensure that all beneficiaries fully understand and grasp the implications and technical aspects relating to this housing initiative.

- The information depicted in Section 3 indicated that the majority of all households are potentially in need of formalized housing. It was furthermore indicated in Section 4 that there are a number of households that are expected to qualify for housing subsidies in terms of their income profile. The proposed housing development could thus make a significant positive contribution towards the overall living conditions of the study area beneficiaries.
- Affordability levels in the study area are very low with approximately 68.4% of all households earning less than R 1600 per household per month.
- The low affordability levels in the study area are clearly the result of the high unemployment rate which is estimated to be as high as 21.19% in the Somshoek and Esikoko project area.

## 7.2 SERVICES ASPECT

A number of important summary observations regarding the **services characteristics** of the study area population include:

- Only 1.41% of households in the study area receive water at levels above the minimum RDP standards according to the 2011 Census information (piped water within a 200 m radius). In addition, the majority of approximately 50.796% of households utilize water directly from Rivers/Streams within the area.
- Approximately 33.2% of all households in the study area do not have access to any form of sanitation infrastructure, while an additional 20.9% are reliant on unimproved pit latrines. The potential impact of the extensive utilization of unimproved pit latrines and other forms of inappropriate sanitation infrastructure, together with the widespread use of untreated surface and ground water as far as potential health implication is clearly evident from this information.

- As much as 1.1% of the total number of households within the study area does not have access to electricity for lighting purposes. These access levels to electricity infrastructure mean that it is likely to result in the extensive use of firewood and other alternative forms of energy for heating and cooking purposes with some resulting negative impact on the biophysical environmental.

### 7.3 INFRASTRUCTURAL ASPECTS

A number of important summary observations regarding the **infrastructural characteristics** of the study area population include:

- The project area seems to be fairly well serviced with regards to access, with three Provincial roads (P281, P349 and P361) and eight district roads, namely D1278, D1280, D1281, D1290, D1371, D2255, D2304, and D871 traversing the project area, in addition to other access and local footpaths and tracks service access to the area.

### 7.4 BIO-PHYSICAL ASPECTS

As far as the **biophysical characteristics** of the study area are concerned, the key aspects can be summarized as follows:

- The dominant land cover within the study area is the “unimproved grassland” (45.27% of the total land area); followed by the “Thicket & Bushland” land cover accounts (25.21%). The “Degrade: Unimproved grassland” covers almost 19.4% of the area. From a development perspective it is important to take due consideration of cultivated areas of land which are made use of for subsistence purposes, so as to minimize any loss of, or impact to, subsistence land which may in turn negatively impact on the residents of the project area.
- The majority of the project area (28.59%) is characterized by flat slopes (Flatter than 1:20) and 16.76% of the area has a slope character “Steeper than 1:3” while 11.67% of the area has a slope of “1:5 – 1:7.5”. Appropriate planning and design principles suitable for the

areas topography taking due cognizance of the characteristics of the area must be applied during the planning and design stages of this housing process.

- The area is traversed by a number of perennial and non-perennial water courses comprising rivers, wetlands and streams, all of which are conducive to periodic flooding. Due cognizance of the 32 m Buffer must be taken to ensure no construction activities occur within floodline areas.
- The most dominant soil type which underlies the project area is that of “Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low – lying soils” which underlies the majority (42.56%) of the total extent of the project area while the “Glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape” occur 19.22% of the area and the third most dominant soil (12.01%) belongs to the “One or more of: Vertic, melanic, red structured diagnostic horizons, undifferentiated” type of soil.
- As much as 71.68% of the project area is underlain by soils with a characteristic “soil potential” described as “Soils not suitable for arable agriculture; suitable for forestry where climate permits”. 59.77% of the project area is characterised by soils depths less than 450 mm and the remaining 32.65% range between 450mm - 750 mm.
- The predominant geology type underlying the project area is known as “Arenite” and covers 69.79 % of the project area. The second and third most dominant geology type of 15.19% and 14.31% belongs to “Dolerite” and “Shale” respectively.
- The project area is covered by five distinct vegetation categories occurring across project area. The predominant vegetation unit is the “Thukela Thornveld” which covers 38.77% of the project area.
- According to Ezemvelo KwaZulu-Natal Wildlife’s C-Plan information for the Uthukela District, the Somshoek and Esikoko Rural Housing project area has an irreplaceability value which ranges between 0 and 1 across the total extent of the project area. Whereas an irreplaceability value of 1 indicates that the area is considered to be completely irreplaceable with regards to biodiversity, the figures for the Somshoek and Esikoko Rural Housing area thus indicate that the area is considered fairly irreplaceable in terms of the biodiversity contained therein.

- There are no known mineral deposits occurring within the boundary of the Somshoek and Esikoko Rural Housing project area and no known deposit points occur within close proximity to the project area.
- There are no known archaeological, cultural or historical sites or artefacts located within the Somshoek and Esikoko Rural Housing project area. Due to the “in-situ” type nature of the proposed project, should any sites or artefacts of archeological, cultural or historical significance be located within the project area, it is not expected or anticipated that these will not be impacted upon as a result of the proposed development. The Developer is however aware of his responsibilities with regards to the Amafa Heritage Act.
- No detailed quantifiable information is currently available on various forms of pollution in the study area. A number of important observations can however be made in this regard:
  - Elevated levels of air pollution, especially during the winter months, are common in the area due to the extensive use of firewood and fossil fuels for heating and cooking purposes.
  - High levels of environmental pollution are evident resulting from the absence of any form of waste collection and management system within the area.

## 7.5 EXISTING SETTLEMENT ASPECTS

As far as the **settlement characteristics** of the study area are concerned, the key aspects can be summarized as follows:

- The area is generally classified as Cultivated Land: Subsistence.
- The project area is characterized by low to medium density scattered rural iMuzi settlement.

- Residents are generally reluctant to move or relocate due to the fact that they bury their dead within their familial iMuzi.
- The majority of the project area (28.59%) is characterized by flat slopes (Flatter than 1:20) and 16.76% of the area has a slope character “Steeper than 1:3” while 11.67% of the area has a slope of “1:5 – 1:7.5”.

## 7.6 RECOMMENDATIONS

Based on the existing available desktop overview, it does not appear as if there are any material barriers to the proposed rural housing development from an environmental impact perspective. The specific impacts which can be anticipated and may have to be managed during the implementation phase will only be known once the exact project extent, location and characteristics have been finalized. Some potential mitigation measures include the following:

- Remove invasive alien vegetation at the project sites
- Soil erosion on site must be prevented during the pre-construction, construction and operational phases.
- Suitable erosion control measures must be implemented in all areas potentially sensitive to erosion such as near water supply points edges of slopes etc.
- Ventilated improved pit toilets must be located away from drainage lines, boreholes and natural springs and at a sufficient distance from the 1: 100 year flood line in watercourses.
- Amafa Akwazulu Natali (Heritage KwaZulu-Natal) has to comment on the need for an archaeological assessment for the proposed development according to Section 27 of the KwaZulu-Natal Heritage Act, No. 10 of 1997.
- A solid waste management plan must be formulated for the areas addressing aspects such as the collection, sorting, recycling and disposal of waste.
- Provision of litter containers in public places to address the litter problem.



## 7.7 LEGISLATIVE REQUIREMENTS

Possible considerations from a legislation point of view are briefly summarized in the table below.

Act <sup>1</sup>	Section <sup>1</sup>	Summary of requirement <sup>1</sup>	Implication for project
National Water Act (Act 36 of 1998) and regulations	S21, 32, 41	"Water use" in terms of the Act includes "impeding or diverting the flow of water in a watercourse" and "altering the bed, banks, course or characteristics of a watercourse". Department of Water Affairs and Forestry will require water licences for all water uses unless the water use is an "existing lawful water use", or it is a permissible water use in terms of the Schedule 1 of the Act or can be generally authorized. It is advised that the Department of Water Affairs and Forestry be consulted as to their licensing requirements for each development. Licences are not required where water is obtained from the local council or another bulk water supplier.	If part of the rural housing subsidy will be utilized for the provision of water the necessary permits will have to be obtained from the Department of Water Affairs and Forestry (depending on the existing water service authority and water service provider arrangement in the area)
	S144	A person is prohibited from establishing a township unless the layout plan shows, in a form acceptable to the local authority, the 1/100 year flood level, for the purposes of ensuring that all persons who might be affected have access to information regarding potential flood hazards.	Depending on the exact location of the housing components, a 1/100 year floodline will have to be determined.
Water Services Act (Act 108 of 1997)	S6	Access to water services must be through a nominated water services provider, failing which approval should be obtained from the water services authority.	Applicable if water provision will form part of the subsidy application.
Water Services Act (Act 108 of 1997)	S7	Water for industrial use must be obtained through a nominated water services provider and no person may dispose of industrial effluent in any manner other than that approved by the water services provider nominated by the water services authority having jurisdiction in the area of question.	It is not anticipated at this stage that any industrial development will form part of the rural housing development project.
Environmental Conservation Act (Act 73 of 1989)	S20	Waste must be disposed of at a waste disposal facility licensed in terms of the provisions of the Act. Any hazardous waste such as paints, varnishes, waste oils etc accumulated at the construction sites must be disposed of at hazardous waste sites. If waste dumps are established for housing developments, a waste disposal license will be required from the Department of Water Affairs and Forestry.	A waste disposal license for a waste dump will be required if a formal waste collection and removal system is implemented as part of housing project. Waste which is may be generated during the construction process, will have to appropriately disposed of.
National Building Regulations and Building Standards Act (Act 103 of 1997) and Regulations	Reg F6 of Part F	No person may on specified days and during specified times generate noise from a construction site which may unreasonably disturb or interfere with the amenity of the neighborhood, unless authorized to do so by the local authority.	Appropriate specifications will have to be included in the tender documentation
National Heritage Resources Act (Act 25 of 1999)	S34	No person may alter or demolish any structure or part of a structure that is older than 60 years without a permit issued by the relevant provincial heritage resources authority	The existence of graves, archaeological or palaeontological sites will have to be further investigated, once the exact location of the housing project components is known.
	S35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site.	
	S36	No person may, without a permit issued by the South African Heritage Resources Association or a provincial heritage resources authority, destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by the local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.	
National Forest Act (Act 84 of 1998)	CH 3 Part 1	There is a prohibition against damaging or cutting protected indigenous trees unless a license has been obtained or an exemption has been published in the Government Gazette.	Indigenous trees will have to be protected, where possible, during the implementation phase of the project
Conservation of Agricultural		This regulation requires the control of weeds and invader plants, which occur on any land or inland water surface in SA.	Weeds and invader plans should be eradicated if occurring at the final

Resources Act (Act 43 of 1983 and GN R1048)		Category 1 plants are declared weeds and may only occur in biological control reserves. Category 2 plants are declared invader plants and may only occur in demarcated areas and biological control reserves. Category 3 plants are declared invader plants and may occur in biological control reserves. All weeds and invader plants not within the demarcated areas or biological control reserves must be eradicated and control methods are stipulated	project location.
National Building Regulations and Building Standards Act (Act 103 of 1997) and Regulations R2378	Reg F6 of Part F	The owner of any land on which excavation work is in progress must take precautions in the working area and on surrounding roads and footways to limit to a reasonable level the amount of dust arising from these areas.	Appropriate stipulations should be included in the tender documentation for construction.
Minerals Act (Act 50 of 1991)	S 5 and 9	No person may prospect or mine for any mineral without the necessary authorization granted to him in accordance with the provisions of the Minerals Act (Act 50 of 1991). Should construction material be excavated from borrow pits, the provision of the Minerals Act, are applicable and the Department of Minerals and Energy needs to be contacted in order to determine their requirements in this regard.	If any borrow pits are to be excavated during the construction process in the implementation phase, the necessary permits will have to be acquired from the Department of Minerals and Energy

<sup>1</sup> National Department of Housing – Environmental services for Housing developments

## 7.8 CONCLUSION

In view of the summary conclusions outlined above, as well as the fact that the project entails the construction of new houses within the boundaries of existing iMuzi's (in-situ upgrading), it is our view that the project will not impact negatively on the environment. The project will in fact provide suitable living conditions to the rural community and contribute to Rural Development.

**SOMSHOEK AND ESIKOKO RURAL SUBSIDISED HOUSING**  
**DEVELOPMENT**  
**PRELIMINARY ENVIRONMENTAL ASSESSMENT**



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Mr. Gert Watson  
K2M Environmental (Pty) Ltd  
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August 2013

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Date