

THE GREATER EMNAMBITHI/LADYSMITH LOCAL  
MUNICIPALITY

The Greater  
eMnambithi/Ladysmith Local  
Municipality  
Social Housing Feasibility  
Study

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**Submitted to:**



EMNAMBITHI/LADYSMITH  
LOCAL MUNICIPALITY

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## 1: INTRODUCTION

### 1.1. PROJECT BACKGROUND AND PURPOSE

eMnambithi/Ladysmith Local Municipality (ELM) is in pursuit of becoming a developmental local government, to enable commitment in delivering basic services to its citizens and ensuring that development is delivered in an integrated and responsive manner to local needs. A developmental local government takes progressive measures to ensure that the citizens' constitutional right to housing is realized. In pursuing this goal, the ELM is proposing the development of social housing on a site located approximately 5-6km from Ladysmith CBD and approximately 500m from a proposed Regional Shopping complex. The ELM however, acknowledges that such development cannot be undertaken in the absence of basic information such as a market feasibility study and soil suitability assessment on the project's proposed site.

The aim of this study is to therefore undertake a market feasibility assessment to the development of social housing in the ELM and to investigate the suitability of Erf 1 and Erf 2434 to the proposed social housing development.

### 1.2. AIMS AND OBJECTIVES OF THE REPORT

#### 1.2.1. The overall aims of the project

The aim of this report is to undertake a feasibility study for the development of a social housing within the Greater eMnambithi/Ladysmith Local Municipality (ELM).

The key objectives to be achieved are outlined in the section below.

#### 1.2.2. The overall objectives of the project

The main objectives of the study are to:

- Review the ELM socio-economic status
- Provide information and data on social housing legislative context
- Review the ELM holistic residential property market
- Determine the ELM housing demand and supply

The sub-aims of the feasibility study are to:

- To analyse the Greater ELM socio-economic profile in order to identify and determine, population growth trends and distribution, household size, and age distribution.
- To analyse and identify economic growth patterns and future growth. By assessing the current economic sectors contribution to the local area and the local area's key employment generators.
- To assess the impact of the newly proposed economic growth points (particularly the nodal-corridor development) on employment generation and migration patterns and income levels.
- To identify and assess the area's housing supply and demand.

**The sub aim of the geo-technical study is to:**

- To conduct a geo-physical assessment on the proposed social housing the site, which includes soil testing.

## RESEARCH METHODOLOGY

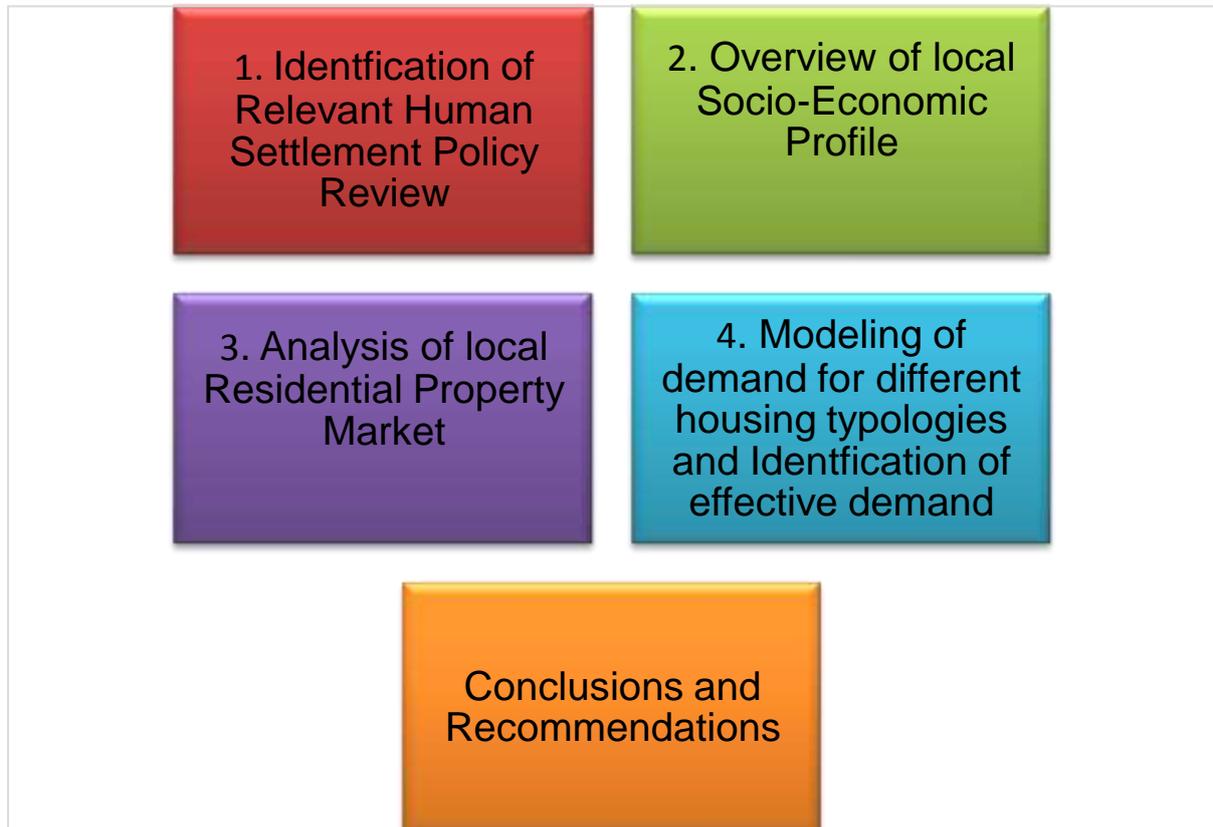
In order to derive the project outcomes, the research employed the following research methodology:

- ✓ A secondary research method was used which comprised of data collection from the following sources:
  - Quantec Regional Database
  - The Municipal's strategic documents -the Integrated Development Plan (IDP), Local Economic Development Plan (LED) and Housing Sector Plan
  - Consultation with the ELM key stakeholders.
  - Discussions with the ELM residential property markets role players such as real estate agents and business stakeholders

### 1.3. STRUCTURE

The remainder of the report is structured in the following manner

Figure 1: Report structure



#### **Section Two: Identification of Relevant Human Settlement Policy**

This section gives a brief account of the relevant legislations pertaining to Human Settlement development and more specifically to Social Housing in South Africa. The sections brief account will examine the hierarchy of legislation, from the National legislation and policy framework, to the Provincial legislation and policy environment, and finally down to the eMnambithi/Ladysmith Local Municipality (ELM) sectoral plans and policies.

#### **Section Three: Overview of Local Socio-Economic Profile**

Section three undertakes a situational analysis of the eMnambithi/Ladysmith Local Municipality, previewing subsections that focus on the following aspect: demographic profile; current and projected migration trend; and economic analysis and employment generators.

#### **Section Four: Analysis of Local Residential Property Market**

This section previews the housing demand and supply in the local municipality, the key focus in this section is to review ELM single residential property market. The section is broken down into primary and secondary market previews in both the formal and informal context.

**Section Five: Modelling of Demand and Identification of Effective Demand**

The final section provides assessment of the ELM housing demand and supply alignment, while simultaneously building a conceptual model for the ELM projected housing demand, per housing subsidy's targeted income group. The ultimate purpose of this section is to identify and determine the ELM effective demand for social housing.

## SECTION 2: LEGISLATIVE AND POLICY CONTEXT

The National Department of Human Settlement has recognised that despite the focus of integration in the National Housing Act of 1994, South Africa has continued to develop a spatial economy of exclusion and fragmentation. The Department of Human Settlement in recognising this, introduced the New Comprehensive Human Settlement Policy called Breaking New Ground (BNG) to combat the continuation of the post 1994 spatial development pattern. The aim of the policy is to reinforce and expand the vision of the National Housing Act by creating settlements that are well located to economic opportunities and integrated in terms of income, social amenities and race. This aim is also in alignment with the principles of the National Spatial Development Perspective (NSDP).

In addressing the human settlement needs the main objectives of the Breaking New Ground policy are:

- Accelerate the delivery of housing as a key job creation strategy for poverty alleviation
- Utilise the provision of housing as a major job creation strategy
- Ensuring that property can be access by all as a wealth creation strategy and empowerment
- Leveraging growth in the economy
- Combating crime, promoting social cohesion, and improving quality of life for the people of South Africa
- Supporting the functioning of a single residential property market to reduce duality within the sector by breaking the barriers between the first economy( formal) property boom and the second slump (informal)
- Utilizing housing as an instrument for the development of sustainable human settlement, in support of spatial restructuring

The key element underpinning this policy is the expanded role of the Department of Human Settlement. According to the policy, the Department Human Settlement will not just address the needs of low income people but also examine the whole of South Africa's residential property market, while also managing and reducing the national housing backlog. The main reason for this shift in focus is the acknowledged growing gap between the primary residential property market, (first time occupation dwelling units), and the secondary residential property market, (dwelling units up for resale). Another reason for the expanded role of the Department was the lack of public housing stock which was far below the national demand for housing.

These housing challenges were largely caused by the following factors: firstly before BNG the Department of Human Settlement had initially subsidised the housing needs of low income people; secondly the department assumed that end-user finance would be available for households' earning incomes above R 3, 500. However this assumption did not occur due to low profit margins and the high risk of non-payment from the R3, 500 and above income category.

In response the Department introduced three housing subsidy bands that would introduce other private stakeholders: the old individual project linked subsidy; the finance linked subsidy; and the institutional linked subsidy. And social housing emerged through the institutional linked housing subsidy.

The Social Housing programme at a national level is guided by the following legislation:

**Figure 2: Human settlement legislation**



Source: *Breaking New Grounds (2004)*

### LOCAL AND SECTORAL POLICY

Housing delivery serves as a spatial catalyst to socio-economic development of the municipalities if the spatial location is well considered. The ELM in recognising this role has instituted three directives tools that guide housing development: the Integrated Development Planning (IDP), the Housing Sector plan within the IDP and the Spatial Development Framework (SDF).

#### IDP directives regarding housing development

The IDP as the ELM main development tool advocates for the “*provision of well serviced safe, healthy and economically viable environment*”, it further subscribes that housing development should be focused in rural areas were the ELM largest population resides. The plan’s strategic agenda regarding housing development is to achieve the following:

1. Improve the access to quality affordable housing
2. Ensure that all communities live in formal settlement by 2012
3. **Construct affordable housing for the income category of R3 500 to R7 500**
4. And to provide institutional housing within the economic development projects

**SDF directives regarding housing development**

The SDF as a spatial representation of the IDP, which is mainly created to give spatial effect to the vision, goals and objectives of the IDP and (hence formulate conceptual land use guidelines for investment and development), reinforces the idea of developing housing in rural areas where population densities are higher. It identifies the area of Driefonetein Complex as a priority spending area due to its high population densities that are characterised by high levels of poverty. The plan further identifies the Ladysmith municipal area as a primary investment node with both secondary and primary transportation linkages with the rest of the municipality and its surrounding hinterland that are both within the ELM and outside the ELM.

Due these forgoing reasons, the Ladysmith municipal area is ideal for the location of poor people who seek urban opportunities.

**2.1. HISTORICAL BACKGROUND TO SOCIAL HOUSING**

In this section the concepts of social housing and its historical foundation will be unpacked. The reason for this is to provide a common understanding and proper working knowledge of the concept and its market niche.

**2.1.1. Historical Background to Social Housing**

The Concept of social housing in South Africa emerged in 2004, within the National Department of Human Settlement *New Comprehensive Plan* called *Break New Ground* (BNG) housing policy. The Breaking New Ground housing (BNG) policy introduced three forms of housing subsidies in addition to the low income housing subsidy. These subsidies included: social housing; affordable housing; and gap housing. Social housing subsidy according to *Break New Ground* is primarily aimed at providing accommodation for low to middle income households in certain restructuring localities.

The overarching objective of the subsidy is to:

1. Restructure the South African society in order to address inherited structural economic, social and spatial dysfunctions: this is to say, while SA has made great strides in the last ten years since the election of its first democratic government, a number of structural constraints in achieving fundamental change remain a cause for concern. These structural constraints are largely borne from SA dysfunctional space economy that reinforces conditions of poverty where they exist and focus growth and prosperity where they exist. This has therefore necessitated an effort from government to take spatial restructuring efforts in conjunction with economic and social transformation so as to adequately deal with SA problem underdevelopment
2. Address the rental housing needs of low to middle income citizens: The effort on this objective is to improve the functioning of SA rental market to be more integrated and receptive even to the low income earners. SA rental market according to DoHS research and policy guidelines measures low against international standards, meaning it's unresponsive to

the needs of the poor in urban areas. And who because of their material well-being need to be located strategically in these places in order to access the opportunities found therein.

The key reason why *Breaking New Ground* (BNG) policy introduced the three new housing subsidies was to solve the problem of South Africa's disintegrated housing market that mainly served the housing needs of the high income earners. Apparently prior to BNG and still even today although to a lesser extent, SA residential property market has been highly disintegrated between a primary residential market and a secondary residential market. This condition has existed largely due to the restrictive housing subsidy conditions given to households earning an income less than R3, 500 per month prior to the BNG policy document. And also this has been further exacerbated by the apartheid inherited administrative issues of incomplete tenure transfer to most black property owners and thus limiting sale and trading of housing.

Regarding the post apartheid government housing stance, it can be said that the post 1994 government worked to reinforce the widening gap of SA residential property market. This was largely done by the assumption that households earning above R3, 500 would be supported by end-user finance and that the market would supply their housing needs. However this did not occur and households earning above R3, 500 were not accommodated in the housing market and this affected the functioning of the residential property market.

Social housing as a Department of Human Settlement, housing subsidy is aimed at providing rental accommodation for the urban market, its aimed more specifically at households/persons earning between R1, 500 to R7, 500 p.m. The social housing subsidy is delivered through the institutional instrument and it distinguishes itself from all other Human Settlement subsidy types in that it restricting immediate ownership to beneficiaries on the short to medium term basis, but makes allowance for full ownership in the long term. Gap housing on the other hand is defined as rental or freehold/individual ownership over fully serviced units by households with incomes from R3, 500 to R7, 500 p.m and it's a subsidy instrument delivered through the project linked subsidy, meaning it cannot be acquired or applied for on individual basis but instead its involves contractors who build houses on behalf of applicants and thereafter give full ownership or rental options to applicants. Affordable housing is defined as rental or freehold/individual ownership tenure over fully serviced units by households with income from R7, 500 to R15, 000 p.m and it's also a project linked subsidy.

In addition, social housing differs from the affordable housing in that it restricts immediate ownership because its mainly designed for a rental urban market. In emphasis to the above statement, the Human Settlement Department has distinguished the housing subsidies according to target income groups and also according to the subsidy's delivery instrument. However there is an overlaps between the subsidy delivery instrument and the subsidy's typology as demonstrated on the following table.

# The Greater eMnambithi/Ladysmith Local Municipality Social Housing Feasibility Study

SUBSIDY DELIVERY INSTRUMENTS						
HUMAN SETTLEMENT SUBSIDY TYPE AND INCOME TARGET		Individual subsidy	Project linked subsidy	Institutional subsidy	Relocation subsidy	Rural subsidy
	<b>Type of Subsidy</b>	This subsidy is for low income households wishing to buy property for the first time.	This subsidy is for low income households and it's available through a project initiated by a local municipality or a relevant government authority.	This subsidy is for non-profit organisation like churches, local authorities or housing associations (also called social housing institutions) that intend to provide rented accommodation to people from lower to middle income group.	This subsidy is for home owners who are locked into paying for home loans they cannot afford.	The subsidy is available to people who lack formal tenure right to land on which the live in.
	<b>Income Target</b>	The target income beneficiary is R 0- R3500 per month	The target income beneficiary is R0- R3500 per month	The target income beneficiary is R1500- R7500 per month	The target income beneficiary is R0-1500 per month	R1 500 -R 3000 per month

	<b>Individual subsidy</b>	<b>Project linked subsidy</b>	<b>Institutional subsidy</b>	<b>Relocation subsidy</b>	<b>Rural subsidy</b>
<b>Beneficiaries Characteristics</b>	<p>The type of housing delivered under this subsidy is called low income housing</p> <p>This subsidy can be acquired by beneficiaries on individual basis without the involvement of contractors and construction of houses.</p> <p>It gives beneficiaries the option to buy houses on the secondary market.</p>	<p>The type of housing delivered under this subsidy is called low income housing</p> <p>This subsidy cannot be acquired on individual basis, it involves contractors who get commissioned by the relevant authority to construct houses on behalf of the applicants</p>	<p>The type of housing delivered under this subsidy is only social housing</p> <p>This subsidy is called an institutional subsidy/ social housing because the subsidy goes out to the institution who rent out houses to different families and the benefit of the subsidy is that its gives the tenant/the subsidy beneficiaries the chance to apply for their own subsidy at a later stage because the subsidy is taken in the name of the organisation</p>	<p>The type of housing delivered under this subsidy is called is low income housing</p> <p>For the subsidy to be granted the loan must have been from an accredited lender and the borrower must have defaulted at least three months payments. The subsidy is intended for beneficiaries to purchases a home they can afford</p>	<p>The type of housing delivered under this subsidy is called is low income housing</p> <p>This subsidy is available on project basis and beneficiaries themselves decide on how to use the subsidy</p>
<b>Tenure Options</b>	It intended for freehold/individual ownership	It intended for freehold/individual ownership	Its restricts immediate ownership on short to medium term, for at least a period of 15 years	It intended for freehold/individual ownership	It intended for freehold/individual ownership

The following table displays the Department of Human Settlement targeted income market per housing subsidy type.

Figure 3: Department of Human Settlement Subsidy Income bracket

HOUSING SUBSIDY	INCOME BRACKET	TENURE OPTION
Low income housing	R0- R3, 500 pm	Rental/Freehold
Social housing	R1, 500-R7,500 pm	Rental/ Rent-to-buy
Gap housing	R3, 500-R7, 500 pm	Rental/Freehold
Affordable housing	R7, 500-R15, 000 pm	Rental/Freehold

Source: *Breaking New Grounds, 2004*

### 2.1.2. Broad profiling of social housing market

Within the Department of Human Settlement social housing policy the following socio-economic and financial characteristics are identified as potential social housing target niche market:

- Persons earning a combined monthly income that ranges between R1 500- R7 500 and who because of such income cannot afford inner city residential property prices, and are therefore forced to opt for affordable rental options such as provided by the social housing institutions
- Persons opting for rental flexibility, considering their occupation mobility and the need for temporary accommodation.
- Persons wishing to address their housing solutions through a collective approach
- Persons requiring short term accommodation such as vendors and others who sell produce in urban areas, basically those who are engaged in the informal economy.
- Broken household where persons urgently need alternative accommodation due to a variety of reasons and circumstances, which can be sociological or financial
- Single dependents who tend to opt for affordable social housing rental options
- Persons with special housing needs but who are able live independently such as those with disability living with HIV/AIDS, including orphans and children.

It has to be acknowledge that the above characteristics are by no means exhaustive or exclusive but that they are the generic frame work that could guide social housing development

#### Key points:

- Social housing is a rental or co-operative housing option for low income persons at a level of scale and built which requires institutionalized management and is provided by **accredited social housing institutions** in designated **restructuring zones**
- Lower income persons are broadly defined as households with an income below R7 500 and therefore the target income bracket of social housing is households with an income of R1 500- R7 500

### 2.1.3. Key concept in social housing

The concept of social housing and its related terms must be clearly defined and explained both for understanding its relationship with the other markets and its holistic functioning's

#### **Social Housing**

The term Social Housing as defined by the **Social Housing Act 16 of 2008** is “a rental or co-operative housing option for the low to medium income household at a level of scale and built form which requires institutionalised management and which is provided by social housing institutions or other delivery agents in approved projects in designated **restructuring zones (RZ)** with benefits of public funding”. The public funding (subsidy)/ restructuring grant comes in mainly to subsidize housing beneficiaries that fall within an income bracket of **R 1 500 to R 7 500**. In addition the subsidy is largely determined by rental units' size and cost linked to income levels.

#### **Accredited Social Housing Institute**

A Social Housing Institute (SHI) is a legally required non-profit organization (NPO) by the Social Housing Act. The NPO is mainly entrusted with the role of developing social housing projects. The benefits of SHI is that the institute is a privately owned company that operates on NPO company basis and thus prevents rental issues that may emerge and end up being linked to political manipulation.

#### **Low-Income Persons**

Broadly refer to those household whose income is below R7, 500 per month. Income mix prescriptions for individual projects will specify desired percentages of participants for different income categories within this broad band and ensure a good spread across the range R1, 500 to R7, and 500

#### **Primary and Secondary Housing Co-operatives**

Primary and secondary housing **co-operatives are** registered co-operatives under the Co-operatives Act of 1981, and can thus access funding through co-operative programme and be accredited as social housing institutions.

#### **Restructuring Zones**

Refers to a geographic area which has been identified by the municipality, with the concurrence of the provincial government, for the purpose of social housing and which has been designated by the minister in the Gazette for approval projects.

Restructuring comprises of three main dimensions:

- Spatial restructuring
- Social restructuring
- Economic restructuring

## SECTION 3: THE GREATER EMNAMBITHI/LADYSMITH SOCIO-ECONOMIC PROFILE

The following section provides an assessment of the current socio-economic profile of the Greater Ladysmith/Emnambithi. The aim of the section is to review both the ELM historical growth trends and patterns and the ELM current status quo. The ultimate aim here is to analysis the ELM current and historical growth patterns so as to enable an informed current social housing demand and projected demand. This section examines the following:

- **Spatial orientation**
  - Analysis the spatial characteristics of the ELM and the socio-economic implication thereof the spatial pattern.
- **Demographic profile**
  - Unpacks the study area's population trend, age distribution, migration patterns, income levels and poverty issues and also assessing the economic indicators as a form of guideline.
- **Economic sectors analysis**
  - Focuses on economic generators in the area and the contribution these make to employment generation and development.

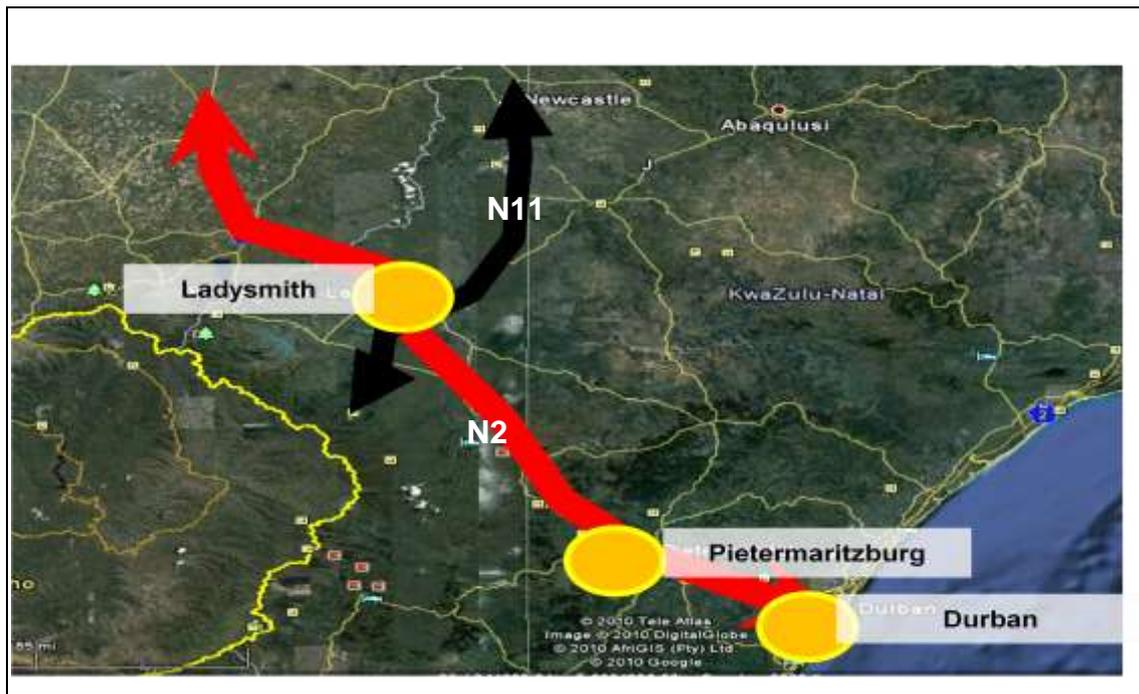
### 3.1. Greater eMnambithi Municipality Locality

#### 3.1.1. Regional Spatial Analysis

The Greater eMnambithi/ Ladysmith LM is a predominately rural municipality located along the N11 provincial route leading to Newcastle. The municipality spans across an area of 3000km<sup>2</sup> within the Uthukela district regional space. The municipality's municipal area is strategically located 20 km from the N3 National primary route which leads to Johannesburg and the municipality lies half way between Johannesburg and Durban. The municipality currently serves as an administrative region for uThukela district and it is expected to play a critical role in economic development through the development of the proposed regional shopping complex..

The ELM was created as a result of the amalgamation of old KwaZulu administered areas and is a prominent trade and industrial area under the Apartheid regime.

Figure 4: The ELM Regional Location



Source: ELM & Urban-Econ (2010)

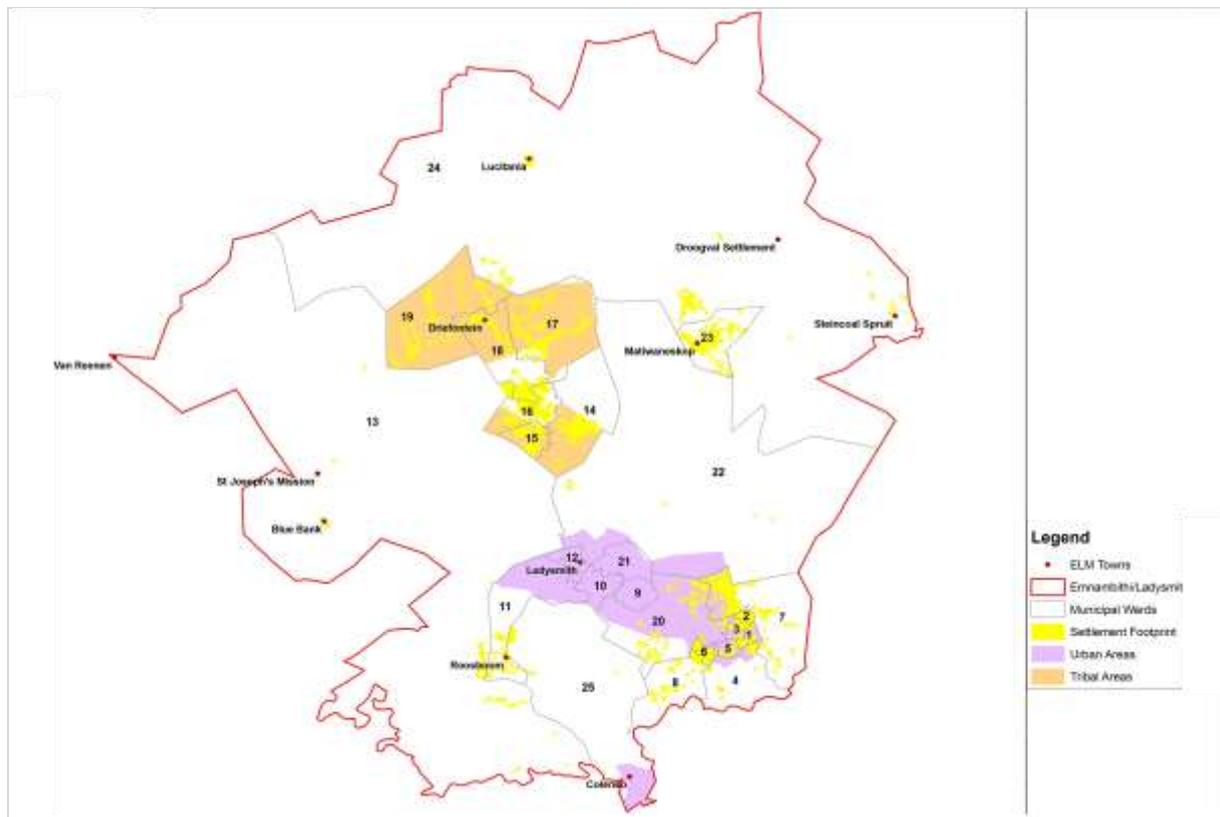
The above aerial map highlights the ELM and its surrounding location. The map also shows the major transport routes that connect the ELM to South Africa's major industrial hubs in Durban and Johannesburg. The map also indicates the N2 nodal corridor development

### 3.1.2. Local Spatial Analysis

The main spatial challenges created by apartheid spatial planning are still evident in the ELM settlement pattern. These challenges include: a disjuncture between where people work and live; and the continuation of a large numbers of the local population residing in peripheral areas of the municipality. During Apartheid these areas served as a labour reservoir for the apartheid government administration and buffers of land were left on purpose between various residential in order to separate them. Black people who were normally the poor were located in distance location to urban opportunities.

Approximately 70% of the ELM municipal area is rural, whilst the remaining 30% is urban. The municipalities' urban district is classified as Ladysmith, Ezakheni, Colonse and Steadville complex. This area fall under the ELM Town Planning scheme and are characterised by a concentration of economic opportunities and administration activities. The ELM rural areas comprise of tribal land and farmlands. The tribal area is administered by the Abantungwa-Kolwa Traditional Authority and its characterised by high populated densities and poverty. The farmlands cover a larger geographical area with low population densities which challenge the provision of infrastructure.

Figure 5 ELM Complexes and Wards



Source: ELM & Urban-Econ (2010)

The map above indicates the ELM settlement pattern and the different densities between the urban area and the rural area, and also it shows the varying economic opportunities found in ELM. The ELM urban area is located along the N11 provincial highway that forms part of the west inland nodal-corridor which also enhances economic opportunities within the municipality.

In terms of the location of the proposed social housing project, the project area is situated in close proximity to the inner city and it lies south of an industrial area and east of a residential area. It is located near a proposed regional shopping complex and it falls within the ELM town planning scheme thus making it an urban area, (as most of the outskirts laying areas are still not included in the town planning scheme). And If we were to analysis the subject property in terms of the ELM functional complexes, we would recognised that the proposed social housing site is located in one of the ELM few prime urban land which is surrounded by the advantages of existing infrastructure and urbanity.

**Figure 6: The proposed Social Housing site**



**Source: ELM & Urban-Econ (2010)**

The map above indicates the proposed social housing site and its immediate surroundings. The site is currently vacant and it's due for a preliminary geo-technical investigation as a sub-component of this feasibility study.

### 3.2. The Greater eMnambithi/Ladysmith Socio-Economic Analysis

A quick overview of the ELM socio-economic status indicates that the study area is characterised by high levels of income inequality and resource disparities. These characteristics are also linked to discrepancies between race groups. The ELM socio-economic framework also shows under-development and a backlog in service delivery. The characteristic of under-development is a result of the areas spatial inefficiency and spatial distortion which has resulted in economic inequality.

#### Analysis of the ELM Population Profile

The Quantec's Standardised Regional Dataset revealed that eMnambithi/Ladysmith LM population growth rate is fairly stable. The dataset indicates that the growth rate has been 0.84% per year since 2001. This figure falls below the South Africa's annual growth rate of 1.17% since 2001

**Figure 7: ELM population distribution**

Population & Household Profile (2009)	Stats
Population total	241 091
Household total	51 597
Population density (People per Square Km)	81
Household density (Households per Square Km)	17

*Source: Quantec Database & Urban-Econ (2010)*

The table above shows the ELM population distribution and density. The table shows that the ELM household density is 81 people per square kilometre and the household density is 17 households per km<sup>2</sup>.

In terms of the ELM migration patterns, the area of Ladysmith is ranked second, in inwards migration compared to the whole Thukela region. The ELM has had a total averaged of 10% inward migrants between the years 2002-2010, following behind the Umsthezi Local Municipality which had an average of 16%.

#### Analysis of the ELM HIV/AIDS Prevalence

The HIV/AIDS pandemic in South Africa has become a key development issue, with strong spatial connections. This pandemic has only recently been acknowledged to have links with space and the economy and was previously dealt with separately. Studying the impact HIV/AIDS, has shown that the issue impacts significantly on housing and the general space economy of an area. The increase spread of the disease will have a profound impact on the demand for housing and more importantly the overall design of housing settlements. These settlements will need to be designed in such a manner that health care facilities are sufficient to deal with the increase in HIV/AIDS infected population and that they are sufficiently catered for cemetery space. On a sociological side, the

pandemic also increases child headed households and the increasing demand for welfare facilities to deal with the problem of orphans.

The Quantec Community Survey revealed that the ELM had an 11% HIV/AIDS infection rate between the years 2002 to 2010; this figure was slightly higher than the uThukela region's 9% HIV/AIDS infection rate. The municipality also in this time span had an 11% death rate which was correlated to the disease.

### Analysis of the ELM Educational Levels

Educational levels are generally a good indicator in the level of development an area has, because the levels are strongly related to employment prospects and income levels. The higher the educational levels an area has, the better it is in terms of its human development index.

With the above correlation in mind, the ELM educational levels show an alarming concern with regards to development. 93% of the ELM population never make it beyond high school level, which suggests that only 7% receives tertiary education and are thus exposed to better economic opportunities. The 93 % have either had no schooling or had some form of schooling but still not enough to be attractive to employers. The table below illustrates the break down schooling completed.

The table below illustrates the Local Municipality's educational levels

**Figure 8: ELM Education levels**

EDUCATION LEVEL	
No schooling	15%
Some primary	19%
Complete primary	7%
Some secondary	31%
Std 10/Grade 12	21%
Higher	7%
	100%

*Source: Quantec Database & Urban-Econ (2010)*

Only 31% of the population finishes high school education in the LM and of that, only 21% finishes high school. The individuals that finish Matric receive the opportunity to access higher forms of education and are thus better equipped to exploit economic opportunities. An alarmingly 15% of the population has no access to any form of education.

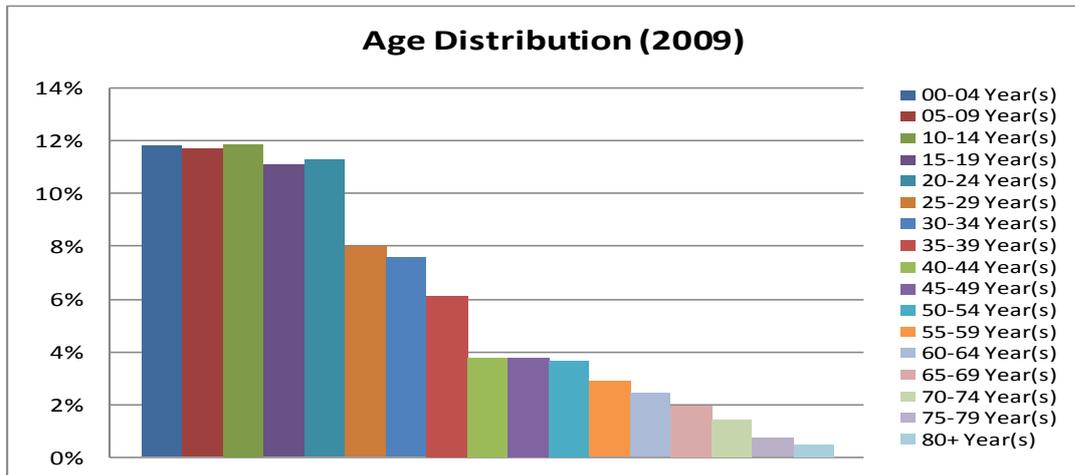
**Analysis of the ELM Age distribution**

An analysis of age distribution has shown to be very important for planning and administrative reasons. Through age distribution studies, municipalities are guided on the number of facilities to allocate and the type of facilities to allocate. These types of studies pin point where to focus development in order to achieve optimum result and effectiveness.

The ELM age distribution indicates that more than half of the municipal population is under 24 years of age. This statistic is problematic for the municipality as this age group is associated to being economically inactive and requires support from the economically active sector of the population.

The graphic below indicates the Greater ELM age distribution in 2009

**Figure 9: ELM Age distribution**



**Source: Quantec Database & Urban-Econ (2010)**

The graph above indicates that approximately 80% of the ELM population is under the age of 24. It has been estimated that only 20% of the municipal population supports the economically inactive population i.e. 80% of the population.

Due to this population trend, more people are currently ineligible for the housing subsidies provided by the government, as one of the requirements for government’s subsidy is for an individual to be above the age of 21 years and have a dependent. But the population trend indicates that in the coming years there will be a sharp increase in demand for housing as more people will become eligible for government subsidies provide that they meet other requirements.

### Analysis of the ELM gender composition

In terms of the ELM gender composition and its implication for housing, the study indicates that the area of Ladysmith has more females than males. 53% of the population are females, whilst the remaining 47% are males. This gender break down provides an overview of the high levels of female under-development in the municipality. This correlates with the norm in rural households in South Africa, which are headed by females. These females are most likely to be semi-illiterate or illiterate with children whose fathers have either migrate to other places in search of better economic opportunities, or have neglected their families due other sociological reasons.

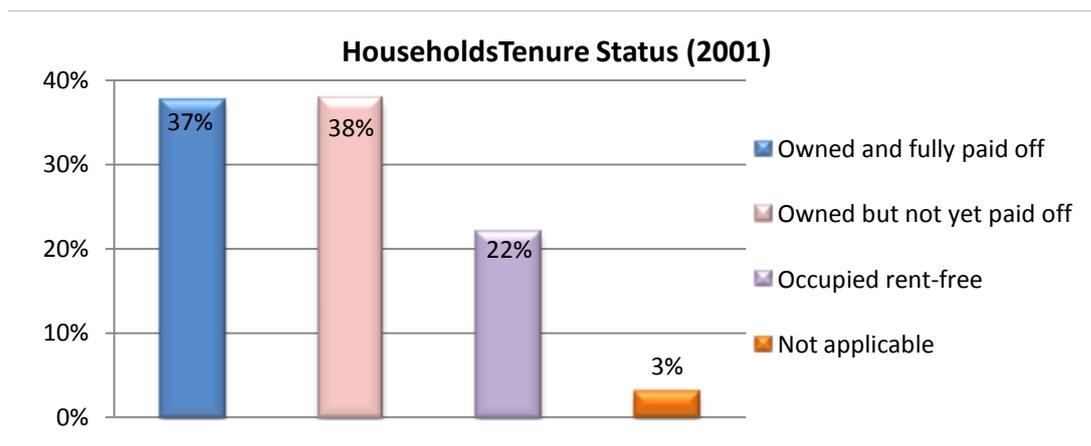
### Analysis of the ELM Registered Household Tenure Status

Studying the ELM household tenure status gives a good indication of the number of people who are eligible for housing subsidies provided by the government, as the key requirement of the subsidy is that the individual has to be a first time home owner. The ELM current housing backlog estimate is to be 13 500

38% of the ELM households whose properties are registered with the deeds office have full ownership of their properties. 37% of households whose properties are also registered with the deeds office have incomplete property ownership due to unfinished payments and 22% occupy properties rent free.

The graph below displays the ELM registered household property ownership status in 2001

**Figure 10: ELM Household Tenure status**



Source: Quantec Database & Urban-Econ (2010)

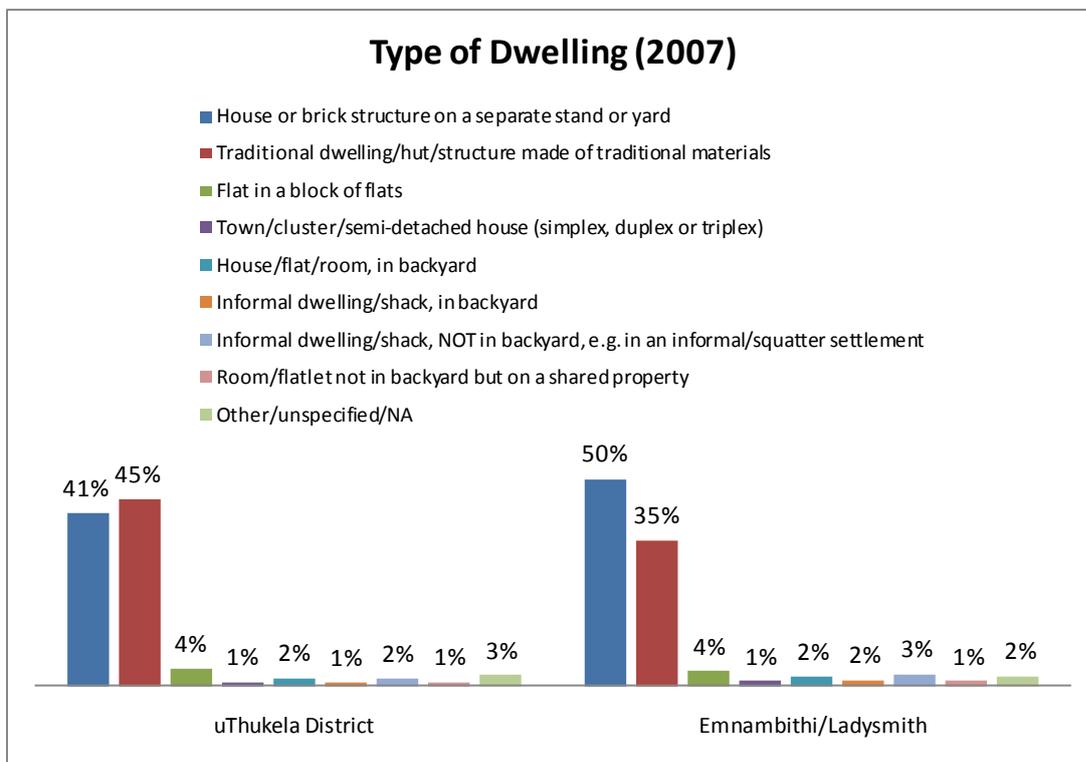
### Analysis of the ELM Dwelling Type

The ELM 2007 community survey of dwelling types reveals the area of eMnambithi/Ladysmith to have 49% of its population living in brick house. This figure was slightly higher than the uThukela district which had 41% of the population residing in brick houses.

35% of the local population resided in traditional structures, and this can be assumed to represent the rural population. The remaining 17% was divided into people living in either a formal structure, or a flat or town house and those who living in an informal structure, either an informal settlement or a backyard structure.

The figure below displays the Greater eMnambithi/Ladysmith dwelling typology distribution according to the 2007 community survey

**Figure 11: ELM dwelling type**



Source: Quantec Database & Urban-Econ (2010)

The ELM urban dwelling type overall analysis has revealed the following essential characteristics displayed in the table below:

**Figure 12: ELM dwelling type analysis**

ELM URBAN DWELLING TYPE	TYPE OF DWELLING STRUCTURE	% OF STRUCTURE
	Main formal structure within a demarcated property	56%
	Sub-optimal formal/informal structure within a demarcated property	6%
	Informal settlement	3%
	Total	65%

**Source: Quantec Database & Urban-Econ (2010)**

It is worth noting that the population eligible for social housing needs further assessment, which is difficult to quantify, because this target group has what is often called a *disguise housing need*. This means unlike the low income group of R0- R1, 500 who if their housing needs are not met, will opt to reside in visibly mushrooming informal settlements, the population demanding social housing often resort to other mechanism for example renting.

**Key points:**

- In 2010 the ELM total population was 2401091 people and 515971 households.
- 9% of this urban population lives in an unsatisfactory accommodation, i.e. backyard shacks.
- The urban population was 94422 and its household was 23030, if assuming an average household size of 4.1

### 3.3. ECONOMIC SECTORS ANALYSIS

#### Regional Economic Overview

This section aims to provide an analysis of the economy of the Greater eMnambithi/Ladysmith, by evaluating the current and future economic drivers in eMnambithi/Ladysmith. This section will also examine the contributions made by these economic drivers in terms of employment generation, income levels and the general development of the area. The goal of this section is to assess the current and potential levels of income earned and to be earned in the future by the Greater ELM population. This assessment will be used as a benchmark to evaluate whether it is feasible to develop a social housing project in the ELM.

According to the KwaZulu-Natal (KZN) Provincial Growth and Development Strategy (KZN PDGS) 90% of the KZN Geographic Gross Product is produced in two areas:

1. The North-South corridor along the coast
2. The West-inland corridor, which runs along the N11 secondary route.

eMnambithi/Ladysmith lies along the Western inland corridor. And since South African National Spatial Development Plan (NSDP) policy framework advises development to concentrate in areas of great economic potential so as to avoid watering can and to also help alleviate poverty in areas of minimal economic potential through the provision of social grants and basic services. The ELM is expected to increase its economic dominance.

#### eMnambithi/Ladysmith Economic Analysis

Although the ELM is identified as a significant regional corridor by both the National Development Spatial Perspective (NSDP) and Provincial Growth and development Strategy (PDGS), the area has had a poor sectoral performance. This poor performance is partly due to economic policies and strategies, and partly due to South Africa's political history and the restructuring that has taken place since 1994.

According to the 2009 ELM Local Economic Development (LED) strategy the tertiary sector had the biggest regional economy in Ladysmith. The strategy showed a continued rise since 1995 till 2008 in total production output. The tertiary sector contributed approximately R6.4 billion Rands in total value production output in 2008.

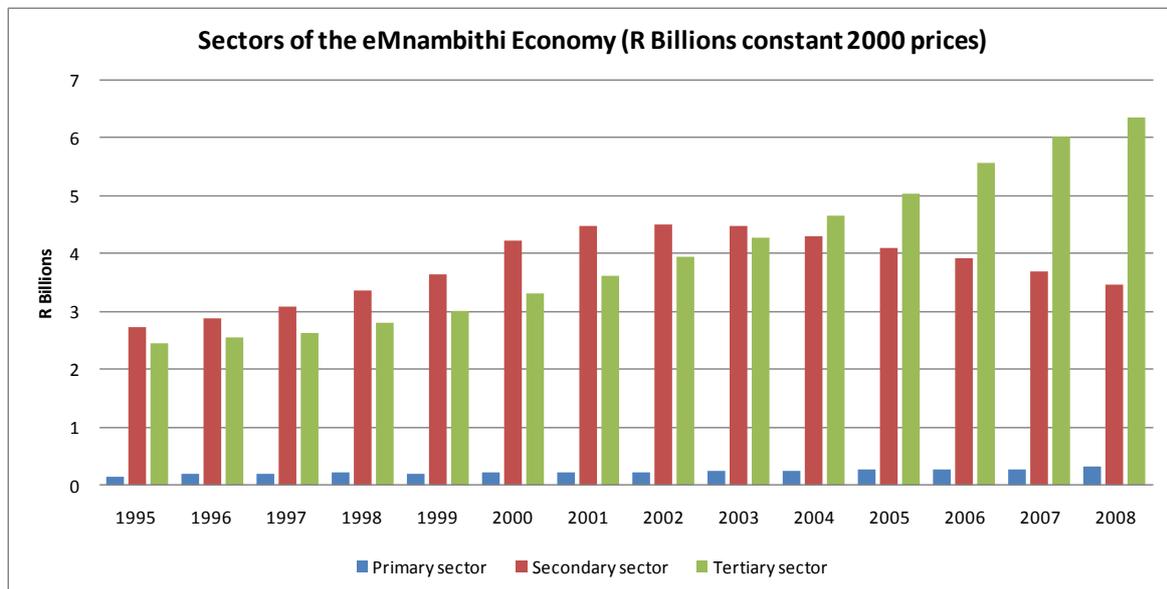
The ELM secondary (manufacturing) sector has witnessed a decline in total value output, contributing approximately R3.4 billion in 2008. In comparison the sector contributed R4.5 billion to total output in 2001/2002. The poor performance correlates with the neo-liberal policies of globalization and government deregulation that has seen the saturation of South Africa's markets by foreigners such

as China. These foreign markets have impacted significantly on the Ladysmith economy, and have out competed and reduce the region's economic market share.

The ELM primary sector contributes the least to the ELM economy, it accounts for a value of approximately R327 million in 2008. The sector has remained stable and constant despite climatic pressure and challenges of droughts and irregular seasonal rainfall that has caused poor output in product.

The graph below illustrates the contribution of each sector to the value output of Ladysmith economy in Rands.

**Figure 13: ELM economic sectors contribution**



**Source: Quantec Database & Urban-Econ (2010)**

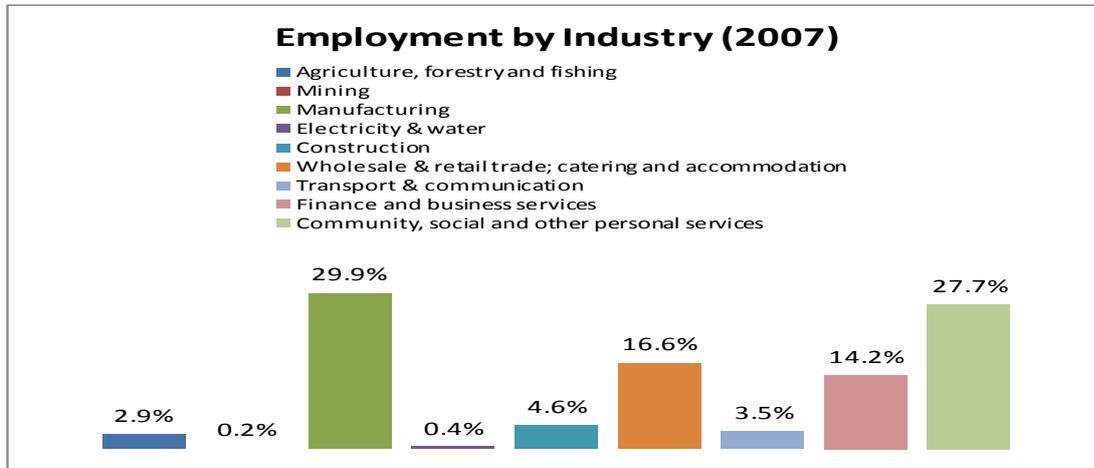
Employment status is generally a good indicator of the level of development in a particular area. With this information one is able to assess the performance of the industries, the socio-economic status of people, and the social services and grants required for area municipal area.

The Quantec Regional database reveals that the ELM industrial contribution to employment is fairly low, given that the tertiary sector employs 39.3% of eMnabithi/Ladysmith population (when all the various tertiary sector industries were combined) this low employment rate is surprising as it is the dominant sector in the municipality.

The manufacturing sector based on its declining trend still, accounts for 29.9% of the employment in the municipality; following the public service sector which employs 27.7%. This figure reflects that government is still the largest employer in the ELM. The primary sector has a 3.1% employment rate.

The graph below displays the ELM industrial contribution to employment

Figure 14: ELM employment by industry



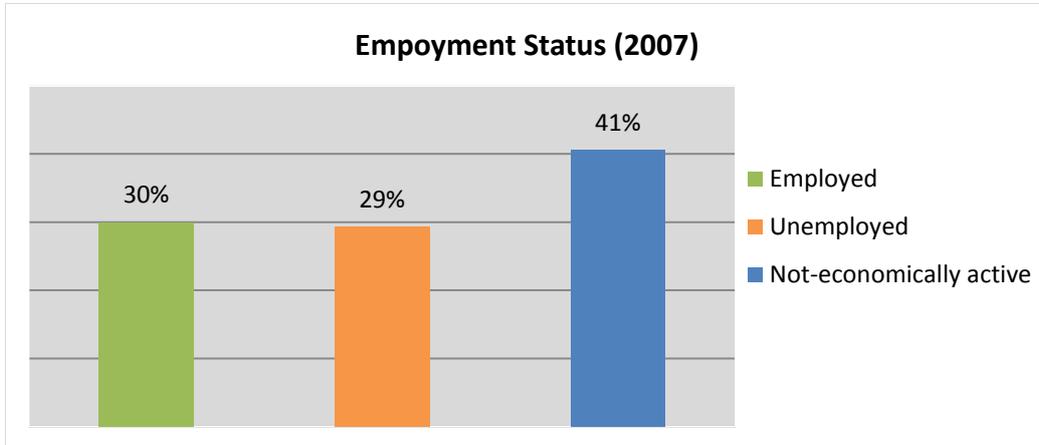
Source: Quantec Database & Urban-Econ (2010)

The ELM employment status holds concern as 41% of the ELM population is economically inactive and supported by 30% of the population who are economically active. A further 29% of the population is shown to be unemployed. This shows that the total population which is economically inactive in the ELM is 70% and is supported by the remaining 30%.

However, this trend is consistent with the age distribution which showed a high dependency ratio, as population numbers declined after the age of 25 years. This means that 70% of the population is eligible for low cost housing and that demand for this type of housing can be expected to come from this segment of the population.

The graph below displays the ELM employment status in 2007

**Figure 15: ELM employment status**



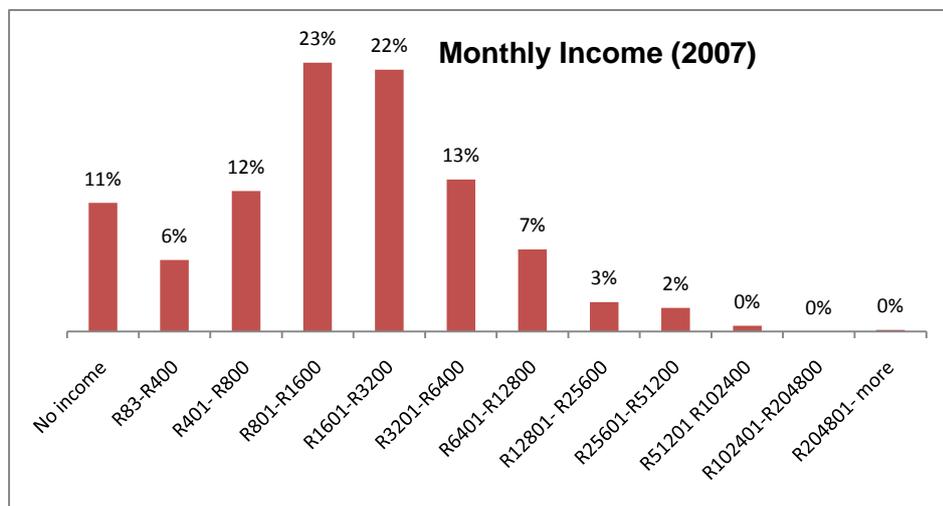
**Source: Quantec Database & Urban-Econ (2010)**

The ELM 2007 household monthly income survey indicates that approximately 87% of the ELM population is earning income levels below R7000 per month and within that 87%, only 53% of the population earns between R800- R6400 per month, making this category of people potential housing market if social housing demand is to be assessed by income levels.

The graph below seeks to demonstrate the ELM 2007 household monthly income levels and as indicated more than half of the ELM households qualify for government's housing subsidy if legibility is assessed according to income levels only. This is because more than half of the population earns income levels below the normal housing market supply.

The following graphs displays the ELM 2007 and 2001 household monthly income

**Figure 16: ELM 2007 household monthly income**

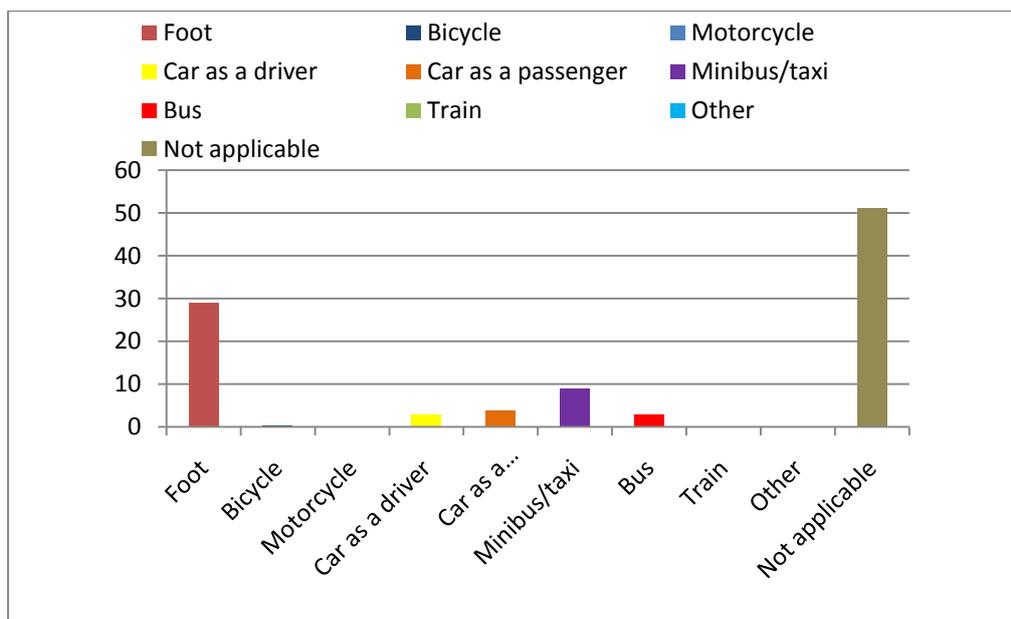


**Source: Quantec Database & Urban-Econ (2010)**

### Historical transportation patterns

The ELM historical transpotational analysis revealed Ladysmith LM to have had approximately 29% of its population travelling by foot and approximately 9% travelling by minibuses/ taxis, and less than 0.5% people using other modes of transportation such as private cars, trains or buses. This analysis enabled the following deduction: that historically a large number of the ELM population did not use public transport for commuting reasons and since levels of car ownership were also low, it be assumed that the ELM's population was largely based in rural areas due to SA racial legislation of the past. However linked to this issue is a concerning global phenomena that is more imminent in African cities, the phenomena of rural-urban migration of people. More and more poor people especially are relocating to cities to access the perceived urban benefits cities are supposed to offer. South African cities are faced with this challenge even more given the fact that historical legislations restricted this pattern.

Figure 17: ELM tranportional analysis



Source: Quantec Database & Urban-Econ (2010)

#### Key points:

- 30% of the ELM population is employed and 96.9% of this population works in urban areas
- More than 87% of this population earns income levels below R7 500.

## SECTION FOUR: REVIEW OF EMNAMBITHI/LADYSMITH SOCIAL HOUSING MARKET

The aim of this section is to review the ELM single residential property market in order to determine the demand for social housing. And in order to do so, the section will evaluate both the ELM **primary** formal and informal residential market and **secondary** formal and informal residential market. The ultimate purpose here is to evaluate these markets in order to assess the current housing supply and backlog in the ELM and thereafter, to use the analysis for quantifying the low to middle-income people's housing needs in the following sections.

### 4.1. Overview of the social housing market

#### Background to South Africa's residential property market

#### Background to South Africa's residential property market

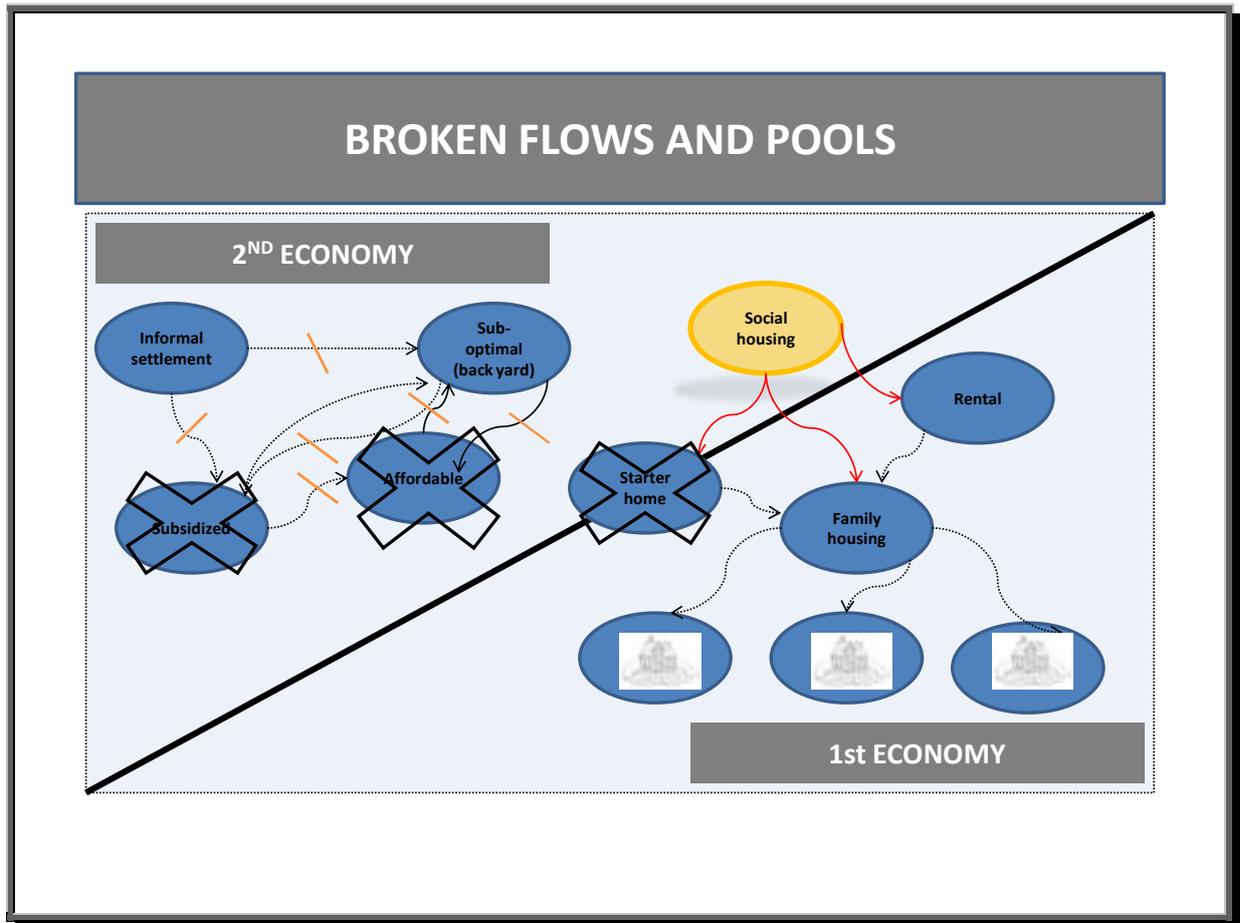
South Africa's formal rental market is under-developed when majored against international standards. Many poor people in SA still struggle to access housing and even more so rental housing from the formal market. This issue is a consequence and self-reinforcing legacy of apartheid that saw the marginalization of the poor people and also the denial of these poor people access to formal housing. What apartheid did to SA residential market is immense, firstly it saw the location of poor people in distance location from urban areas and secondly in cases whereby poor black people were allowed the opportunity to live in urban areas they were resided in properties they did not own but instead held in 99 years lease agreement. So what happened in SA as the period of transformation came into effect is that, you witness the restitution of land to poor black people who were dispossessed of their land during the apartheid regime, and the granting of full tenure to 99 year old leased properties. This was done by the democratic government as a way of combating poverty and restoring social stability in SA instable economy, dysfunctionality spatial pattern.

So as full housing tenure was given to poor black people, many of government's rentals housing stock was sold and paralleling this event was urban influx as racial legislation that restricted black people from come into urban areas were abolished. Therefore SA sits today with a housing backlog that is a consequence of apartheid and an ever increasing urban population that seeks accommodation in urban areas. Government through BNG and the introduction of social housing is committing itself to work with various stakeholders to provide rental accommodation to poor black people, who because of their income cannot get absorbed into the formal residential market.

### SA failed residential property market

The picture below depicts SA current housing market and as indicated the first economy's rental market excludes the poor. Rental rates are too high for the poor to afford and as such the poor are caught in the second economy with minimal housing benefits. As the current view is that housing is an asset that can link the first and second economy.

Figure 18: Broken Flows and Pools



Source: Urban Land Mark & Urban-Econ (2010)

In an ideal situation a person coming from an informal settlement or leasing as a tenet in someone's backyard is supposed to move from that poor accommodation to a subsidized house which can either be a low cost house, or affordable housing, or gap housing. This person is then expected at a later stage to either remain in their subsidized house or move into a now affordable starter home due to an improved economic prospect. This process is called residential market filtration. In SA however this does not occur, due to many reasons, the key reason being are reluctant of the SA banks to partner in affordable or gap housing provision. Consequently, SA residential market is broken down into two markets: the formal market and the informal market. Linking institutions such as banks and real estate agents are not integrating it and many poor people are trapped in unacceptable living condition. Social housing is thus viewed as a mechanism that can address some of the foregoing issues through

its provision of temporary to permanent housing opportunities on rental basis to the poor in good location where economic opportunities are ripe and thus provide that missing linkage between the first and second economies residential property market.

However, one of the main disadvantages identified with social housing, the report would like to highlight, is that it has an inbuilt monitoring weakness to beneficiaries' income levels in the sense that it fails to monitor beneficiaries income growth levels and thus review the legibility to continue to reside in social housing as the subsidy's target income group is R1 500- R7 500 only.

## 4.2. Supply of Social Housing

### Overview of the Social Housing Market

The ELM residential property market represents SA's residential property market. In a sense that It's concentrated with a large number of poor people who are struggling to access affordable rental opportunities provided by the formal market (especially in good locations). The current prevailing market caters for the needs of high to middle income earners. According to interviews conducted with various real estate agents, the ELM residential property market is seen to be affected by the surrounding developments and according to the views of these property role players, the market is proving to be unresponsive to the demand for rental housing these projects exert on it. The Ingula Eskom power station as one of the surrounding project, is situated in close proximity to Ladysmith and a lot of migrant labours are seeking accommodation in Ladysmith and so do petroleum pipeline migrant labourers.

In terms of real estate's understanding of Ladysmith client profile, the states agents were of the view that the market in demand of rental housing is single parents with a preference of full ownership and accommodations that are located in good areas in terms of social facilities and currently there are no social housing provided within the ELM or rental housing within the social housing affordability.

### 4.3. Demand for Social Housing

The demand for social housing is broken down into the following subsections:

- Current (2010) pent-up demand
- Future demand

#### 4.3.1. Current demand for Social Housing

In order to determine the ELM current demand for social housing (which is referred to as the pent-up demand), three main factors were taken into account:

- **The ELM household income profile**
- **The ELM existing housing profile**
- **The ELM occupational classification according to urban and rural occupation.**

Data of 2001 and 2007 household monthly incomes per income category group was collected and documented. The average annual income growth rate per income group was calculated and then used to project the number of household income group per income category for the year 2010

The table below indicates the number of households projected to earn between the various income categories for the year 2010 based on the 2001 to 2007 annual average growth rates.

**Figure 19: Household monthly income**

MONTHLY INCOMES CATEGORIES	NO. OF PEOPLE		
	2001	2007	2010
No income	25	11	11
R1-R400	10	6	6
R401- R800	21	12	12
R801-R1600	16	23	23
R1601-R3200	13	22	22
R3201-R6400	8	13	13
R6401-R12800	5	7	7
R12801- R25600	2	3	3
R25601-R51200	1	2	2
R51201 R102400	0	0	0
R102401-R204800	0	0	0
R204801- more	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Source: Quantec Database & Urban-Econ (2010)*

**Determining social housing demand based on income levels**

Based on 2010 number of household income levels, it is indicated that the following number of households range between the following compound income levels. As indicated in the table below, 29% and 14% are a potential social housing market, if evaluated according to the National Human Settlement subsidy income bracket of R1 500- R7 500.

**Figure 20: Household monthly income**

Income Categories	ELM 2010 Housing Subsidy Market
R0- R1 500	48%
R1 500- R3 500	29%
R3 500- R7 500	14%
R7 500 - R15 000	7%
R15 000 +	2%
Total	100
<b>No. of Household</b>	<b>52000</b>

*Source: Quantec Database & Urban-Econ (2010)*

### Determining social housing demand based on dwelling typology

The ELM 2007 housing typology indicates that 9% of the current urban housing typology exerts a potential demand for social housing. This is because these housings typology are unsatisfactory to persons living in them and the persons living in them meet the social housing income criteria of R1 500- R 7 500.

**Figure 21: Dwelling typology**

ELM dwelling typology 2007	% of dwelling typology	Classification of housing typology	% of classified dwelling typology
Traditional dwelling/hut made of traditional materials	35	Rural housing <ul style="list-style-type: none"> <li>This form of housing typology is excluded from the potential social housing market analysis because of its rural location.</li> </ul>	35
House or brick structure on a separate stand	50	Urban formal <ul style="list-style-type: none"> <li>This form of housing typology is excluded from the potential social housing market analysis because it normally represents people with full housing ownership.</li> </ul>	56
Flats in a block of flats	4		
Town/cluster/semi-detached houses	1		
House/flat/room in backyard	2	Urban informal/sub-optimal housing <ul style="list-style-type: none"> <li>This form of housing typology is used as the main basis at which a potential social housing market is analysed from.</li> <li>The typology deals with the urban market whose housing needs are currently not addressed because financial ocnstraints, i.e. back yard leasing</li> </ul>	9
Informal dwelling/shack, in backyard	2		
Informal dwelling/shack, Not in backyard, i.e. informal squatter	3		
Room/flatlet not in backyard but on a shared property	1		
Other/unspecified	2		
<b>Total</b>	<b>100</b>		<b>100</b>

**Source: Quantec Database & Urban-Econ (2010)**

### Determining social housing demand based on occupational status

Based on the ELM employment, which indicated that 30% of the ELM total population is employed and thus a potential market for social housing, and bearing this figure in mind, it was calculated that the ELM urban occupational status is 96.9%. If all the rural based sectors were excluded from the calculation, sectors such as agriculture and mining. It is calculated that the average urban employment is 29.1%; if the ELM total employed population (30%) is multiplied by the ELM urban employment occupation (96.9%).

**Figure 22: Economic sectors**

Urban based economic sectors	% of sectors contribution to employment
<b>Secondary</b>	29.9%
<b>Tertiary</b>	67%
<b>Total</b>	96.9%

*Source: Quantec Database & Urban-Econ (2010)*

*ELM total employed population X average urban employment*

*I.e. 96.9% X 30 = 29.1%*

### Combined social housing determining factors

Based on above three factors analysis (income, dwelling type and occupation) it is concluded that 13% of the ELM urban employed population exerts a potential demand for social housing. And as such the following table displays the current subsidy type demand in the ELM.

**Figure 23: 2010 Social housing demand**

eMnambithi/Ladysmith current (2010) Social Housing demand						
Income Categories	ELM Housing Subsidy Market					Total
	Low Income Housing	Social Housing	Gap Housing	Affordable Housing	High Income Housing	
<b>R0- R1 500</b>	48%					48%
<b>R1 500- R3 500</b>	20%	9%				29%
<b>R3 500- R7 500</b>		4%	10%			14%
<b>R7 500 - R15 000</b>				7%		7%
<b>R15 000 +</b>					2%	2%
<b>Total</b>	68%	13%	10%	7%	2%	
<b>No. of Urban Household</b>	15660	2994	2303	1612	461	23030

*Source: Quantec Database & Urban-Econ (2010)*

Based on the above calculation, it is concluded that 13% (which is 2993.9 household) of the ELM population demands social housing. However this figure has a shortfall of not excluding those people who might be a potential social housing market according to all the social housing criteria (of income levels, urban residence without an individual house ownership and persons requiring rental flexibility) but these people may still be not interested in social housing for a myriad of reasons. For reason such as satisfactory with their current rental price and accommodation.

And so for this reason, the report views it necessary to calculate the pent-up/effective demand, which is based on the following factors:

- **The exclusion of “room/flatlet not in backyard but on a shared property” dwelling typology**, which means the calculation excludes those people who might be a potential social housing market but because they are living in satisfactory accommodations they will not be interested in social housing

And based on the above calculation the ELM estimated the pent-up/effective demand to be:

$$\begin{aligned} & \text{ELM potential social housing demand-room/flatlet not in backyard but on a shared property} \\ & 13\% - 1\% = 12\% \text{ pent-up demand} \end{aligned}$$

This equals to: 2964 households

---

#### 4.3.2. Estimated demand for social housing

In order to estimate the future demand for social housing, the following three factors were used:

- **The ELM economic sectors growth**
- **The ELM employment growth**
- **The ELM monthly income**

Using the current economic sectors contribution to employment and the sectors average growth, plus household numbers and their average size, including household monthly income levels, a current demand for social housing was determined per each economic sector. The table below displays the current social housing demand per economic sector

Figure 24: Economic sectors contribution to social housing demand

Economic Sectors	Secondary	Tertiary	Total
No. of Urban people employed in 2008	21719.19	48506.191	70225.381
% of employment contribution by each sector	30%	67%	97%
% of economic growth rates per annum in 2001-2008	3.0%	4.5%	
Employment in 2010	21962	49670	71632
Employment in 2015	25460	61897	87358
No of households in 2010	5357	12115	17472
No. of households in 2015	6210	15097	21307
2010-2015 growth no. of household	853	2982	3835
Average household per year	170	596	766
Social housing demand 13%	22	77	99

Source: Quantec Database & Urban-Econ (2010)

#### Projected demand for social housing

Based on the current average economic sectors contribution to social housing demand, a projected social housing demand for 5 years is displayed on the table below. The demand for social housing is expected to be negatively affected by the completion of the Eskom Ingula project in 2014 and the Petroleum pipeline project in 2013.

Figure 25: Projected demand for social housing

ELM Projected Social Housing demand for 5 years						
	2010	2011	2012	2013	2014	2015
Pent-u Demand	2964					
Future demand projections based on urban sectors						
Secondary sector		22	22	22	22	22
Tertiary sector		77	77	77	77	77
Total	2964	99	99	99	99	99
Cumulative	2964	3063	3162	3261	3360	3459

Source: Quantec Database & Urban-Econ (2010)

#### 4.4. Sustainable Social Housing Development

The main underpinning principles and objectives of social housing in SA is to restructure SA settlement pattern, through the provision of affordable rental units to poor people in good locations. The eMnambithi/Ladysmith municipality has aligned itself to this goal by committing its self to the following service delivery vision of “*providing compact, integrated and sustainable living settlements and offering opportunities to all society within the municipal space.*” And for the municipality to achieve its goal, the following guiding principles have to be adopted in social housing development:

##### Integrated and sustainable social housing settlements

**Socially:** The social housing settlement has to cluster together a range of viable local services (schools, health centres, community centres, training/job centres, faith centres, shops, recreational facilities etc.) and ensure the positioning of new centres on principal routes, at the heart of neighbourhoods. The settlement has to also ensure that there’s a well servicing public transport. And that each local facilities are provided early in the development programme to support local residents as they arrive in new neighbourhoods (*rather than retrofitted later once behavioural patterns in support of facilities located elsewhere are entrenched and potential problems arise*)

**Economically:** The social housing settlement has to develop in an economically viable manner with limited extra / special public funding needed to keep the settlement functioning once constructed;

**Environmentally:** the social housing settlement has to be environmental conscious and ensure always that environmental degradation is minimized as far as possible. The settlement has to basically follow the principles of compaction and densification.

#### 4.5. Social Housing Funding Grant Programme

A social housing subsidy is funded through two main subsidies streams: the old institutional subsidy and the new capital grant subsidy. The latter depends on the compliance of social housing delivery agents with the criteria’s of the subsidies. The first subsidy (which is the institutional subsidy) is a social housing subsidy which has been in place for a number of years. The subsidy is allocated by the National Department of Human Settlement in concurrence with the Provincial Department of Human Settlement to income beneficiaries that earn up to R3 500 and less. The subsidy amount per applicant is adjusted every financial year. With the institutional housing subsidy, the social housing institute applies for the subsidy on behalf of the tenants and contributes a small amount to the subsidy.

The capital grant is subsidy based on the concept of restructuring zones. A social housing institute applies for this subsidy, but before it can do that, provinces and municipalities need to apply at a national level for the approval of restructuring zones. And the Social Housing Regulatory Authority

(which came to replace the Social Housing Foundation) manages the approval and allocation of the capital grant, while province gives top-up funds and administers their disbursement and monitors compliance.

A capital grant can only be achieved and allocated by proposing projects that are in accordance with the criteria for social housing and that are within restructuring zones. Outside these restructuring zones, social housing projects and social housing institutes can only apply for the institutional subsidies.

According to the social housing toolkit, for a social housing project to receive the capital grant, it needs demonstrate its downmarket reach of 30% minimal. This means that at least 30% of its rental units need to be affordable to income group of R1 500- R3 500 per month. This standard component of the grant will be based on the percentage of this downward reach in social housing projects. However the maximum of this percentage is 70% and if projects have more than 70% downward market reach it will not receive extra or additional funds. This is done to promote mixed income projects and settlements.

The capital grant subsidy is considered to be more than the institutional amount, and considering the financial characteristics of the target group, it is economically unviable for social housing institutes to initiates social housing projects outside of restructuring zones, as their forfeit the capital grant subsidy

The capital restructuring grant has the following key principles applied in its allocation:

- Grant is only applicable to a portion of the capital cosy of project
- Funding is against the project
- Rents should not exceed 33% of monthly income
- Minimum 30% of primary market: R1 500 – R3 500
- Maximum 70% secondary market: R3 501- R7 500
- Rentals should not be higher than R2 500
- Projects must be financially viable
- Escalations will be applied in the policy
- Private sector must pledge an equity contribution of (minimally 20%) up-front in order to be eligible for the grant

#### 4.6. Social Housing Case Studies

The aim of this sub-section is to look at social housing cases studies and to assess their success factors in order to learn from them.

##### ***Case study 1: Candella Road Social Housing Project***

###### **Project background**

Candella Road is a Greenfield social housing development located in Cator Manor Bonella, approximately 6 km from eThekweni municipality's CBD. The project fell under the Presidential Job Summit Pilot Programme (PJSPP) which identified housing as one of the key tool that could be used to stimulate socio-economic growth through the provision of low cost housing using labour intensive method.

The project was first initiated in 1991 when then the House of Delegates proposed the provision of residential units on the Candella Road. However, the proposal got no further than a site preparation and in 2001 the KwaZulu Natal Department of Housing approached Motheo Construction Group (MCG) with a request to submit a proposal for the development of Candella Road. Changes in local government resulted in the project's delays until late 2003 when the eThekweni Municipality's Housing section requested that the project be expedited under the auspices of the eThekweni Housing Association (eTHA).

In addition to the above, the project also suffered delays due to land releasing processes. The release of the land to the housing institutions got delayed and when the land was eventually transferred and notorially tied to eThekweni Metro (EM) in March 2004. The approved subsidy value for the project was outdated and the eThekweni Housing Association had for all intents and purposes dissolved. The Project was relocated under the EM Housing Department.

###### **Institutional arrangement**

In terms of the projects institutional arrangement, the Candella project sits within a very complex institutional framework. As mentioned before the project was first initiated under the auspice of eThekweni Housing Association, which was incorporated in 2003 and had been involved in the refurbishment and Greenfield housing developments. The eTHA however as a section 21 company had internal issues of lack of capacity. This resulted in the project being taken over by the National Housing Finance Corporation (NHFC) which further proposed that the project be taken up by the Metro Housing Company, which on its own never came into fruition.

###### **Funding aspect**

PJSP projects generally held priority and the benefits thereof in terms of easily accessible funds and generally more rapid processing of the development after land acquisition. The project secured two

thirds of the finances through provincial, municipal and capital grants while the remainder of the funds was secured from the NHFC since eTHA were unable to provide payment guarantees. eTHA submitted a motivation for finance to be accessed from funds made available for Presidential Job Summit Projects. However this was unsuccessful based on a report by the NHFC citing that the housing institution's lack of viability through its inability to provide property management support for the Candella Road units including allocation of units; the inability of the EM to provide support to eTHA (financial and other); and the lack of policies and procedures for the project from all stakeholders.

To solve some of the financial problems the EM investigating the CRU and Restructuring Grants in Restructuring Zones to ensure that the project is sustainable. However, according to policy the Restructuring Grants cannot be allocated retrospectively.

### **Site yield and Design**



The project site measured 1.9 Ha and it was zoned residential with relatively uneven terrain. The site yielded ten blocks of flats using a 93du/ha, with two storeys flats and others three storeys of flats. Each block had at its core a semi enclosed external staircase and a laundry yard at ground floor. The blocks distribute the 40 one-bedroom (35m<sup>2</sup>) and 108 two-bedroom units (42m<sup>2</sup>) (areas include

portions of passages in front of units) with 12 units in each block.

### **Operations and Maintenances.**

Presently, the project is carried out in part by MCG, but the responsibility lies with the EM which claims to have the capacity to undertake such service since they service other housing schemes.

### **Rentals**

Prospective tenants were drawn to achieve a racially integrated community whose household incomes are between R3500-R7500/month and meet subsidy criteria. The rental amounts for units are R750 and R1000 for a one and two bedroom unit respectively. Rentals cover administration costs, operations and maintenance, and hopefully a profit to be used to capacitate the social housing institution.

### **Occupancy and allocations**

The allocation of units was a contentious issue at Candella Road which led to protests early in January 2008 forcing the rapid occupation of units. EM argues that tenants were drawn from a referral system of anyone interested. The Ward Councillor instigated a protest at the official opening of Candella Road and this led to vandalism lasting about ten days causing much damage to the buildings and perimeter fencing. The Ward Councillor contended that people in his/her Ward should have been consulted and should have been prioritized as tenants on qualification, however, it seems as if there was a communication breakdown and information was not adequately disseminated to the members of the Ward. EM said Council mechanisms and procedures are in place for this type of communication to occur. Those beneficiaries who have to date been allocated dwellings in the development have taken occupancy – these are but a handful by the middle of February 2008. A tenant interviewed (name withheld by request) expressed concern over the misallocation of unit size to her family needs (single mother with two teenage boys allocated to a one bedroom unit). She seemed unaware of any processes to express her discontent.

### **Key lesson learnt**

#### **Institutional lesson/s**

- The EM was not accustomed to managing this form of rental stock, and at the time of press the necessary capacity, policies and procedures to undertake this mandate remained undefined at the time of going to press and handover to beneficiaries imminent.
- Only fully capacitated social housing institutions (staff, offices, policies and procedures etc.) should be allowed to undertake such developments
- The EM was not accustomed to managing this form of rental stock, and at the time of press the necessary capacity, policies and procedures to undertake this mandate remained undefined at the time of going to press and handover to beneficiaries imminent.

#### **Financial lesson/s**

- Social housing institutions within municipal structures have been disadvantaged by the MFMA legislation which does not give all such institutions access to necessary start-up capital.

#### **Management and Tenant relations lesson/s**

- Administration and management aspects of the scheme must be securely in place before the completion of the scheme and not post-construction
- The tenant allocation system should be transparent, well understood and applied stringently. Ambiguity and political interference regarding target groups should be eliminated or limited as far as possible.
- Unit size should be commensurate with the family size / structure as requested on application forms.

**Policy lesson/s**

- Social housing policy does not require tenants to prove their continued qualification for benefits such as social housing after initial qualification. As such, tenants can continue to reside in units irrespective of increases in incomes, thus discouraging any turnover in the rental stock and in turn an endless demand for social housing which government is expected to fill. It may be necessary to establish a review system which reviews tenant's income from time to time to establish if they are still within the ambit of social housing benefits.

**Figure 26: Candella Road Housing Typology**



The picture above depicts the side views of Candella Road social housing. It shows the two storey housing typology design.

**Case study 2: BG Alexander-Hill Brow Social Housing Project**

BG Alexander Housing Estate is a social housing project located in Johannesburg inner city. The project initiated in 2007 after the launch of the Inner City Urban Renewal programme which set to revitalize and revamp old derelict buildings in Johannesburg's inner city. The BG Alexander project involved the renovation and refurbishment of an architectural valued complex which was formerly functioning as a nurse's college.

**Institutional arrangements**

A number of organisations collaborated to ensure the successful implementation of this development. Johannesburg Social Housing (JOSHCO) is responsible for the property's development while Madulamoho Housing Association (MHA) is responsible for the management of the property and aspects related to tenants. In addition, MHA has entered into a Social Development Contract with Metropolitan Evangelical Service (MES), which provides a full range of social services free of charge for the people living in the Estate. MHA employs one Housing Manager and an Assistant Housing Manager to oversee and run the activities of this development.

**Funding**

Funding for the R46 million project was mainly sourced from institutional subsidies.

**Site yield and Design**

The project involved the conversion and refurbishment of 14 buildings (named A-N) accommodating a mix of communal dwelling units and family units. The site measured 1.27 Ha and yielded 402 units, using a 293 units/ha. Unit design has been constrained by the existing load bearing structure and the budget. Units are pragmatically designed and provide quality accommodation for the target market. Family units are provided with a standard steel kitchen sink unit with cupboard below and communal units have built-in cupboards only. The picture below shows the internal design of BG Alexander rental units. As indicate the various units were design to accommodate the needs of the different market

**Figure 27: One Bed Room Unit**



**Figure 28: Two Bed Room Unit**



**Lesson/s Learnt**

- Good collaboration between organisations and major stakeholders helped to see the successful implementation:
- The complex provides accommodation for the target market outlined in social housing subsidy, including the lower end of the band.

## SECTION SIX: CONCLUSION AND RECOMMENDATIONS

This section provides the summary analysis and the key recommendations the ELM should undertake in developing a social housing project.

In closing, the study has demonstrated that there is a definite and quantifiable demand for social housing in the local municipality. And that currently, the rental housing needs of low to middle income people are not addressed or met by the formal rental market and in cases whereby there are perceived to be addressed, it's presumed to be in an unsatisfactory manner i.e. there are addressed through shacks or backyard rental. The ELM largest housing demand is calculated to come from low cost housing, the demand accounted for 68% (15660 households). This figure correlated with the ELM socio-economic status of under-development and high levels of poverty. The current estimated social housing demand is 13% (2994 households).

ELM projected annual estimate demand for social housing is 99 people per year. The estimate is based on the current economic growth rate of 3% in manufacturing and 4.5% in tertiary sector. This estimate is largely dependent on the continued economic growth rate and should anything happen to the rate-be that they decreases or increases, then the demand and supply for social housing should be adjusted appropriately.

In 2013 and 2014, demand for social housing is expected to decrease due to the completion of the Eskom Ingula project and the petroleum pipeline project. However, although this is expected to negatively affect demand, it is also anticipated that demand for social housing demand will be positively affected by the proposed regional shopping complex and the industrial and service developments: the Aerodrome and Dunlop industrial expansion particularly.

The main recommendation the report would like to highlight about quantifying the demand for social housing is that, it would be more accurate and actual to use a method called self-targeting than income based legibility testing (which this report has made used of). The method of self-targeting involves the piloting of a social housing project in a particular area and assessing the response of the market to the idea. An example of such would be: to build or refurbish existing derelict buildings for rental purposes, for a certain sub-section of the market (i.e. target people who are migrant labours from the rural areas or hawkers who work in town) and who would have been excluded by market dynamics from living there. Thus method of self-targeting would unpack the project in a modelling manner and on a scale small enough to test the market without running the risk of losing substantial capital should the market be not keen rental housing. The continuity of the project would then, depend on the uptake of the sub-section targeted market and that would be used as key informants on whether it's viable to continue developing other social housing projects.

The second recommendation the report would like to make is that, it's far much more viable and profitable for social housing agents to build integrated rental units, meaning rental units that includes the upper market as well as the lower market income category. This enables the cross-subsidization of the lower income group and ensures the longevity of the project. As more than often social housing rental units have rental issues that are linked to inflation and tenants inability to afford.

A third recommendation the report would like to make is that, the local municipality has to decide on the level of involvement it would like to establish with the social housing project's administration and management. As currently there are three ways in which the local municipality can get involved in the administration of social housing (and each has its own advantages and disadvantage): 1. The ELM can form its own social housing entity or 2. It can partner with an NPO (through what is referred to as public private partnership) or 3. It can give the total administration to a private NPO. The first engagement (which involves the total administration by the local municipality through its own entity) has some constraints related to the Municipal Financial Management Act (MFMA) and the Municipal System Act (MSA), which prescribed for local municipalities' financial management and duties. The MSA specifically sets that housing is not a function of local government in terms delivery, although local government is expected to play a certain facilitating role in it provision, but in essence the delivery of housing is a function of the national and provincial government. And unless a municipality can prove that there is an imminent need for it to address its housing need, then national and provincial government should address all housing matters with the help of the local municipality.

The second alternative of forming a PPP is a more preferable method of administration as it allows for the free administration of social housing by the patterned NPO entity without political interference and jeopardy. This method would be ideal method in our understanding of land market dynamics. This is because the method gives total administrative power to an NPO and the NPO holds the land together with rental units on behalf of the local municipality until such an agreed time lapses. The benefit of such is that it prevents the total ownership of land to be passed on to a private entity which may in the long run decide to sell rental units and exclude the poor from strategic location in the CBD.

**Annexure One: Social Housing Typologies and Built Form**

**Figure 29: Haven Hill South, East London**

Sun View



**Figure 30: Candella Road, Durban**

Typical two storey block



Figure 31: Haven Hills South, East London

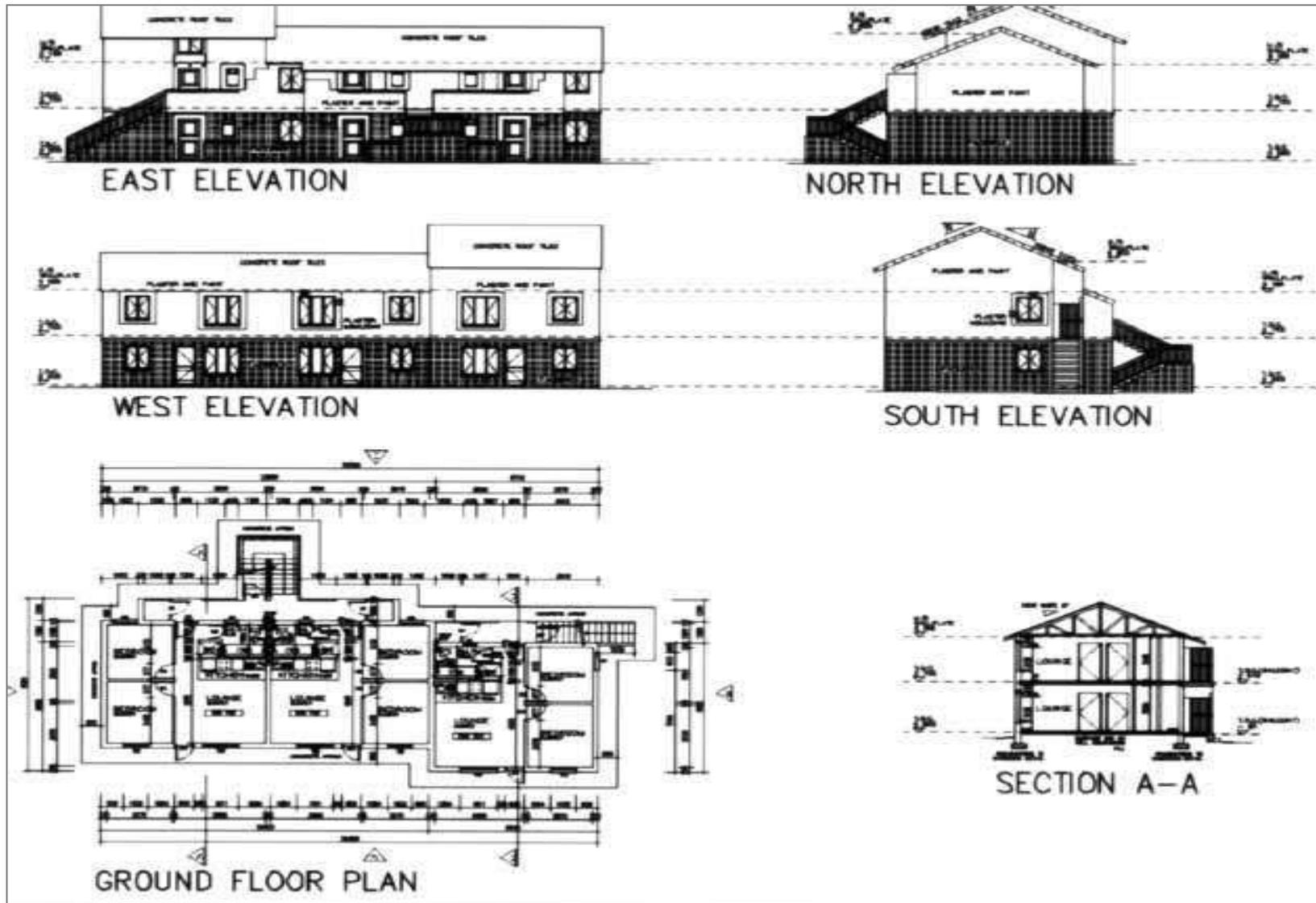
Haven Hills South Facade



Figure 32: Uthingo (Tasbet) Parks, Mpumalanga

Walk ups with two bedroom and one bedroom unit







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Figure 34: Signal Hill, PMB, KZN

2 Bed room floor plan

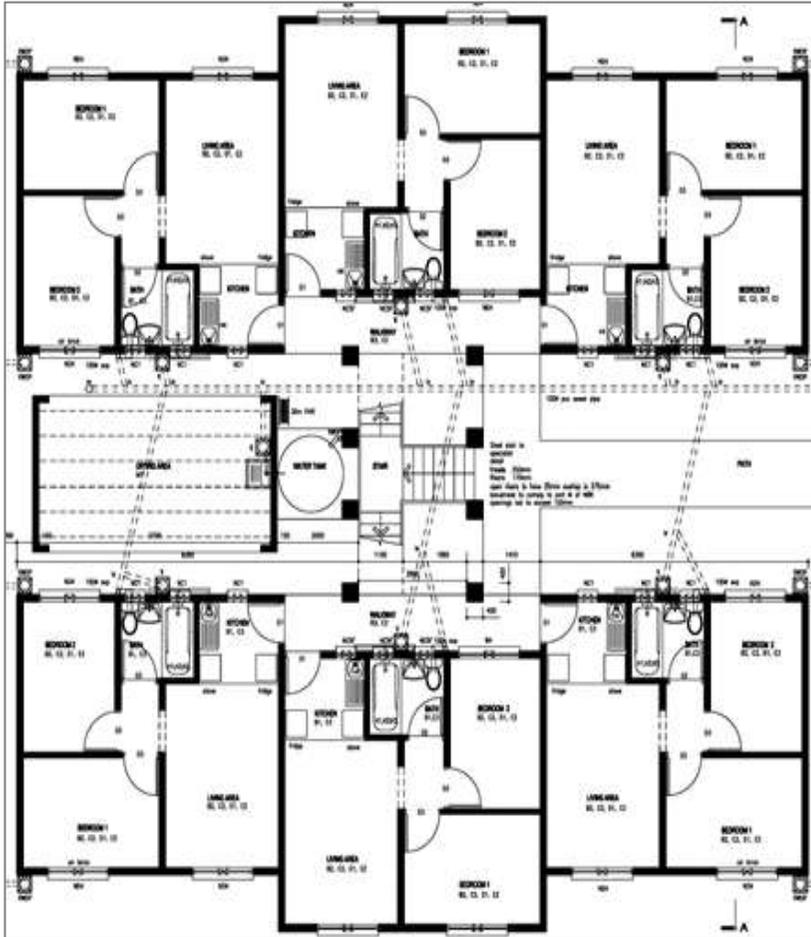
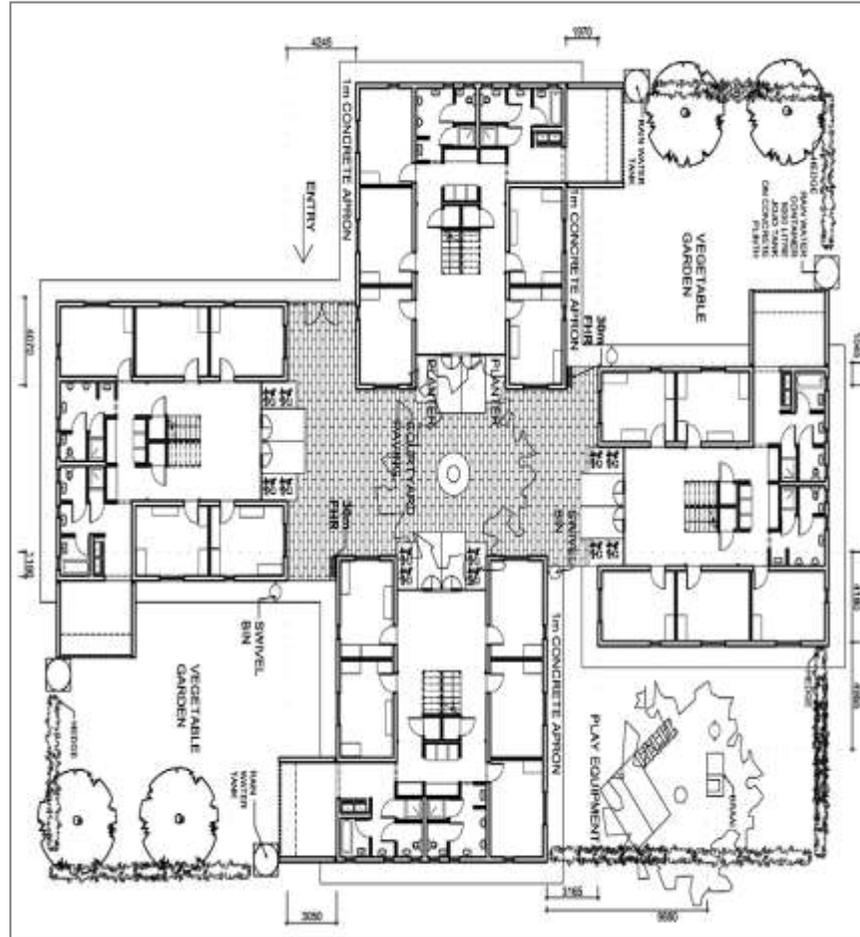


Figure 35: Botlabela Village-far East Bank, Sandton

Typical ground floor



**Annexure Two: Geotechnical Investigation**

**ENGEOLAB cc**

Earth Science Consultants  
Civil Engineering Soil Testing  
Reg. No. 2002/014257/23  
Vat Reg. No. 4710205925



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REPORT ON THE RECONNAISSANCE GEOTECHNICAL INVESTIGATION FOR THE  
ESTABLISHMENT OF A TOWNSHIP ON ERVEN 1 & 2434, EMNAMBITHI LOCAL MUNICIPALITY,  
LADYSMITH

**Project: LL1776**

**Date: January 2011**

**P.G. Hansmeyer Pr.Sci.Nat**

**REPORT ON THE RECONNAISSANCE GEOTECHNICAL INVESTIGATION FOR THE ESTABLISHMENT OF A TOWNSHIP ON ERVEN 1 & 2434, EMNAMBITHI LOCAL MUNICIPALITY, LADYSMITH**

**1. INTRODUCTION**

**1.1. Terms of Reference**

This report presents the results of a reconnaissance geotechnical investigation into the foundation and service conditions for a proposed high density township development, previously known as the “Danskraal” site located on Erven 1 & 2434, Emnambithi Local Municipality, Ladysmith.

This investigation conforms to the scope and requirements of a Phase 1 geotechnical investigation as envisaged by the Development Facilitation Act (DFA) National Department of Housing: Generic Specification GFSH-2, which also encourages the undertaking of supplementary Phase 2 (or detail) geotechnical investigations if necessary prior to, and during construction when building and service positions are accurately known. The format of the report also conforms to the requirements of Section 33 of the EIA Regulation R385, 2006 under the National Environmental Management Act 1998.

The investigation was carried out jointly at the request of Mr. E De Beer *TRPSA* of Messrs. Urban Econ, Development Economists of Durban and Emnambithi Local Municipality, Ladysmith. The site was investigated in January 2011.

The objectives of the reconnaissance geotechnical investigation were to: -

Determine the site geology and depth to bedrock where possible, noting outcrop if present and steep gradients.

Establish the soil and weathered rock profiles across the site and evaluate their engineering properties and influence on the proposed development.

Assess the groundwater conditions, including surface run-off, ponding, and where possible comment on the presence of perched or permanent water tables.

Evaluate the workability of the site materials with regard to their excavatability.

Comment on predicted safe bearing capacity values, expected heave and consolidation/collapse settlement of the various potential founding horizons.

Classify the site for development suitability according to the geotechnical categories proposed by the SAIEG in their Guidelines for Engineering Geological Investigations.

Provide appropriate geotechnical recommendations pertaining to residential township development, in accordance with the requirements of the National Home Builders Registration Council (NHBRC) guidelines.

Provide comment on any geotechnical aspects and/or mitigating solutions that could have an environmental impact on the site development.

The report and it's appendices are presented as Volume 1 with the drawings contained as Volume 2.

## 1.2. Available Information

*Information was obtained from the following sources: -*

- i) An aerial photograph in JPG format of the site was supplied by Messrs. Urban Econ.
- ii) The topographical map of the area, Ladysmith to a scale of 1:50 000
- iii) A topographical map showing the cadastral boundaries of the site and the ground elevation contours was also supplied by Messrs. Geodynamic Systems.
- iv) A Layout Plan showing the location of the boundaries.
- v) A Google Earth Image of the site.
- vi) The Garmap SA Topographical and Recreation series map of the area.
- vii) The 1:250,000 scale geological map, sheet number 2828.
- viii) The site is not in a known area of active seismicity.
- ix) Characterization and Mapping of the Groundwater Resources, KZN Province, Unit 9, August 1995.

The location of the site is shown on the Locality Plan, Figure 1 in the beginning of the report and the site layout is shown on the three Site Plans, Figures 2A, 2B and 2C, Volume 2.

## 1.3. Site Details and Assumptions

The undeveloped 116ha rectangular site is hemmed in by the extensions of Limit Hill Township along the western and northern boundaries and an existing industrial development along the southern boundary on an area previously known as 'Danskraal' which is bounded by one of the provincial tarred roads to Colenso – refer to the Locality Plan, Figure 1 and Figure 2, the Site Plan. It is understood that the development of the site will primarily consist of high density occupation comprising two to three storey flats on relatively small pieces of land separated by open natural spaces. The main access to the site is possible along the southern boundary.

The site is presently undeveloped with an extensive borrow pit, a small earth embankment dam and an underground electrical cable – refer to Fig 2A, the Site Plan. Arable areas are rather limited and the site appears to have been used exclusively for grazing and borrowing of pavement construction materials – hence the small earth embankment dam near the western boundary and the borrow pit in the central section of the site. At the moment the site is overgrown with natural grass with the central, higher-lying area demarcated by clumps of mature Acacia Karoo ('sweet thorn') trees.

The physiography of the site is dominated by dolerite hills forming a local water shed along the northern boundary with its highest elevation at 1090m amsl in the central-eastern portion, close to Flag Hill, a prominent landmark of the area. To the south the intermediate, dissected 'foothills' with interspersed drainage channels occur at an average of 1050m amsl- refer to Figure 2A, Site Plan with Topography.

Ladysmith and the immediate surroundings have a mean annual rainfall of 600mm to 800mm per annum. This area falls within the Upper Tugela Catchment and is located within the V12G Quaternary catchment. The two main drainage channels emanating at or close to the dolerite outcrop along the northern boundary channel surface run-off towards the east and the west,

respectively forming the headwaters of Flagspruit and Bellspruit, both tributaries of Klip River, a tributary of the Tugela River.

The site comprises three landforms, the upper 'dolerite' cap along the northern boundary and the southwards sloping 'foothills' and deep dongas draining east - and westwards. Other features pertinent to the geotechnical assessment of the site include wetlands and open, easily accessible grasslands as indicated on Figure 2C, the Environmental Plan.

## **2. METHOD OF INVESTIGATION**

An aerial photographic interpretation was conducted prior to a drive-over survey and photographic recording of the prominent features of the site – refer to Figures 3A and 3B. The site appraisal was done by a qualified, registered practitioner.

## **3. SITE GEOLOGY AND SOILS**

Dolerite outcrop comprising core stones to huge boulders interspersed with grassy covered clayey soils characterised by numerous Acacia Karoo trees dominate most of the higher-lying northern sector of the site – refer to Figure 4, Geology. Some loose screen (mainly dolerite gravels and boulders) is present along the 'foothills' of the steeper dolerite outcrops from where the site slopes southwards. The topography of this lower-lying section of the site has an even gradient typical of the almost horizontally disposed partially consolidated Quaternary sediments of the Masotcheni Formation. The latter occurs as isolated deposits along valleys of the larger rivers – in this case the Klip River.

The geology and soils of the site are described according to the following geological legend – refer to Figure 4, Geology Plan as follows:-

Transported soils – Alluvium and colluvium;

Intrusive dolerite in various stages of weathering;

Quaternary soils - partially consolidated sediments of the Masotcheni Formation.

## **4. GEO-ENVIRONMENTAL FACTORS**

This section of the report specifically deals with geotechnical aspects, which in our opinion may have an impact on the environmental sustainability of the project.

The hydrological units and aquifer classes that occur in the immediate area are described and briefly discussed below. Springs and seep zones occur throughout the area and are associated with impermeable dolerite outcrops and sedimentary horizons as well as unconsolidated sediments. As far as can be ascertained, no boreholes exist on site and the groundwater aspects discussed below reflect summaries of studies conducted in the Ladysmith area on similar rock types.

**Table 4.1.1 Hydrogeological Units and Aquifer Classes**

<b>Hydrogeological Unit</b>	<b>Aquifer Class</b>
Masotcheni Formation	Intergranular
Intrusive Dolerite	Weathered and fractured

The Masotcheni Formation comprises unconsolidated Quaternary sediments which occur as isolated deposits along the valleys, larger rivers and as observed on site where this formation had been bisected by deep dongas. Where sufficiently thick, these sediments form primary aquifers which are capable of storing significant quantities of groundwater that are recharged by seasonal flows. However, the catchment on this particular site is rather small and the recharge limited and hence renders the Masotcheni sediments as insignificant for groundwater exploitation. The recorded borehole yields of this specific hydrogeological unit are insignificant at 0.25l/s and are thus regarded as sufficient for handpumps only.

The dolerite occurs as massive sills up to 50m thick in places. The sills outcrop as near horizontal sheets but also occur at depth. The sills vary in terms of weathering and the thinner, more fractured occurrences tend to have higher groundwater yields. The average groundwater yield associated with intrusive dolerite is 0.33l/s.

Springs occur on the hill slopes close to the dolerite outcrops with the surface run-off channelled down slope, eroding the unconsolidated sediments of the Masotcheni Formation – hence the two prominent dongas on site. The average depth to the ground water table ranges from 5m to 30m.

Generally, the ground water quality of the immediate area is characterised by sodium alkalinity (pH 7,5 – 8,5) and the electrical conductivity levels range from 0 – 350mS/m. The higher conductivity levels are often associated with high levels of mineral salts in solution such as sodium and chloride and to a lesser extent magnesium and calcium.

**Seepage**

Some 30ha or 26% of the site underlain by unconsolidated sediments of the Masotcheni Formation and smaller portions along the southerly margins of the dolerite outcrop is subject to seepage – refer to Figure 6, the Zonal Plan. The local south trending watershed and the dip of the bedrock which conforms to the topography of the site, ensure that both the surface run-off and deeper seepage drain towards the Klip River, some 2km southwards.

**Surface Run-off**

The site drains to the west and east at gradients varying between 6° and up to 18° - refer to Figure 5, Site Plan with Slope. Surface run-off will have to be well channelled by means of storm water drains and culverts through the proposed housing units to prevent ponding and additional erosion.



### Hydraulic Conductivity.

No specific hydraulic conductivity tests were undertaken on the site, because it was understood that sewage and storm-water services would be reticulated, negating the need for septic tank suitability tests. The EIA (Environmental Impact Assessment) study will address this issue in greater detail.

The following hydraulic conductivity parameters, estimated from the soil classifications are however provided:

Colluvium, diabase residuum: -  $1 \times 10^{-4}$  to  $1 \times 10^{-6}$  cm/s to  $1 \times 10^{-7}$  to  $1 \times 10^{-9}$  cm/s  
Masotcheni Formation : -  $1 \times 10^{-6}$  to  $1 \times 10^{-8}$  cm/s

## 5. FOUNDATION ASSESSMENT

The site access, topography, drainage, soil strata, outcrops and seepage inclusive of the developments – i.e. a pipeline and a large borrow pit have been examined to determine their suitability as founding horizons for the proposed two and three storey developments. Note however, that the following aspects will only be investigated during a detailed geotechnical investigation:-

- Strength and bearing capacities of the founding materials determined from estimated field consistencies and inferred from tabulated strength values.
- Compressibility of the founding materials measured from laboratory test results, expressed in terms of their coefficients of compressibility and estimated deformation moduli.
- Potential heave, where applicable, in the residual soils.
- Predicted displacements (settlement/collapse/heave) from the above factors.
- Excavatability.
- Availability of construction materials and their applications.
- 100 year flood lines.
- Slope stability.

## 6. DEVELOPMENT RECOMMENDATIONS

The site has been categorized into five separate development zones depending on the individual geotechnical constraint and its ostensible severity as defined by the NHBC Class (refer Tables 2 & 3 in the appendix). The zones, their approximate areas and severities (as defined by the Site Class – NHBC), and the possible mitigation options are provided below and presented on Figure 5, the Zonal Plan.

### 6.1. Zone A – 76ha area- Site Class C - C2, H – H3, R

Approximately 76ha of the site underlain by unconsolidated sediments of the Masotcheni Formation along the lower, southern portion of the site inclusive of the northern portion

underlain by a dolerite sheet. The area falls within a zone which complies with C - C2, H – H3 & R site variations of the NHBRC class system. This includes occasional boulder excavation, soft to intermediate excavation of the Masotcheni Formation sediments with limited seepage. Construction methods applicable will vary from normal construction to deep foundations, soil rafts and piled foundations. The choice of conventional versus piled foundations will be determined by the costs and for 2 – 3 storey structures; alternatively, basement parking should be implemented, especially in areas where no seepage occurs.

Building on the northern, higher-lying sector underlain by boulder dolerite may be constrained by difficult excavations in bouldery and/or sub-outcropping ground. The severity is difficult to determine, as the dolerite core stones and boulders are fairly erratic. From a construction perspective however additional costs can be expected to install services, and road cuts, and where appropriate additional costs associated with terracing and footing excavations. Where foundations span across rock and soil (especially in areas underlain by the dolerite sill), then reinforcing in the foundations is recommended, since differential settlement is likely also to be the total settlement.

Precautions regarding ponding of water in flat to gently sloping ground also apply throughout this portion of the site. Good site drainage is required and standard surface water exclusion precautions are recommended. Rehabilitation of the badly eroded sections inclusive of the deep dongas will have to be rehabilitated to prevent additional erosion.

#### **6.2. Zones B, C, D and E – 40ha – Site Class P**

Approximately 40ha of the site is predicted to be underlain by four zones deemed undevelopable due to:-

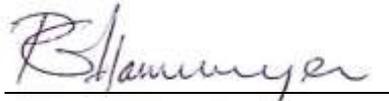
- i) an existing borrow pit - that is Zone B, 3.95ha;
- ii) drainage features with deep dongas – that is Zone C, 31ha;
- iii) steep slopes – that is Zone D, 4.9ha;
- iv) underground electrical cable with buffer zone – that is Zone E, 0.24ha.

#### **7. GENERAL**

Every effort was made during the reconnaissance investigation to ensure that generally accepted practices of our profession were used in the evaluation of the site including the identification of the most obvious geotechnical constraints. However it is impossible under the constraints of a restricted investigation of this nature to guarantee that zones of either poorer foundation conditions, or harder rock excavation were not identified. The investigation has attempted, through interpolation and extrapolation of known test locations, to predict potential problem issues of a geotechnical nature and thus provide preliminary guidance to town and regional planners. Variances in soil and rock quality may be encountered during the detailed investigation; however no warranty against these variations is expressed or implied, due to the geological changes that can occur over time due to natural processes, or human activity.

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Although not anticipated at this site, it should be noted that this investigation did not include the assessment of any potential environmental hazards, or groundwater impacts that may be present, or ensue from the construction of the proposed structures.



---

PG Hansmeyer *Pr. Sci. Nat.*

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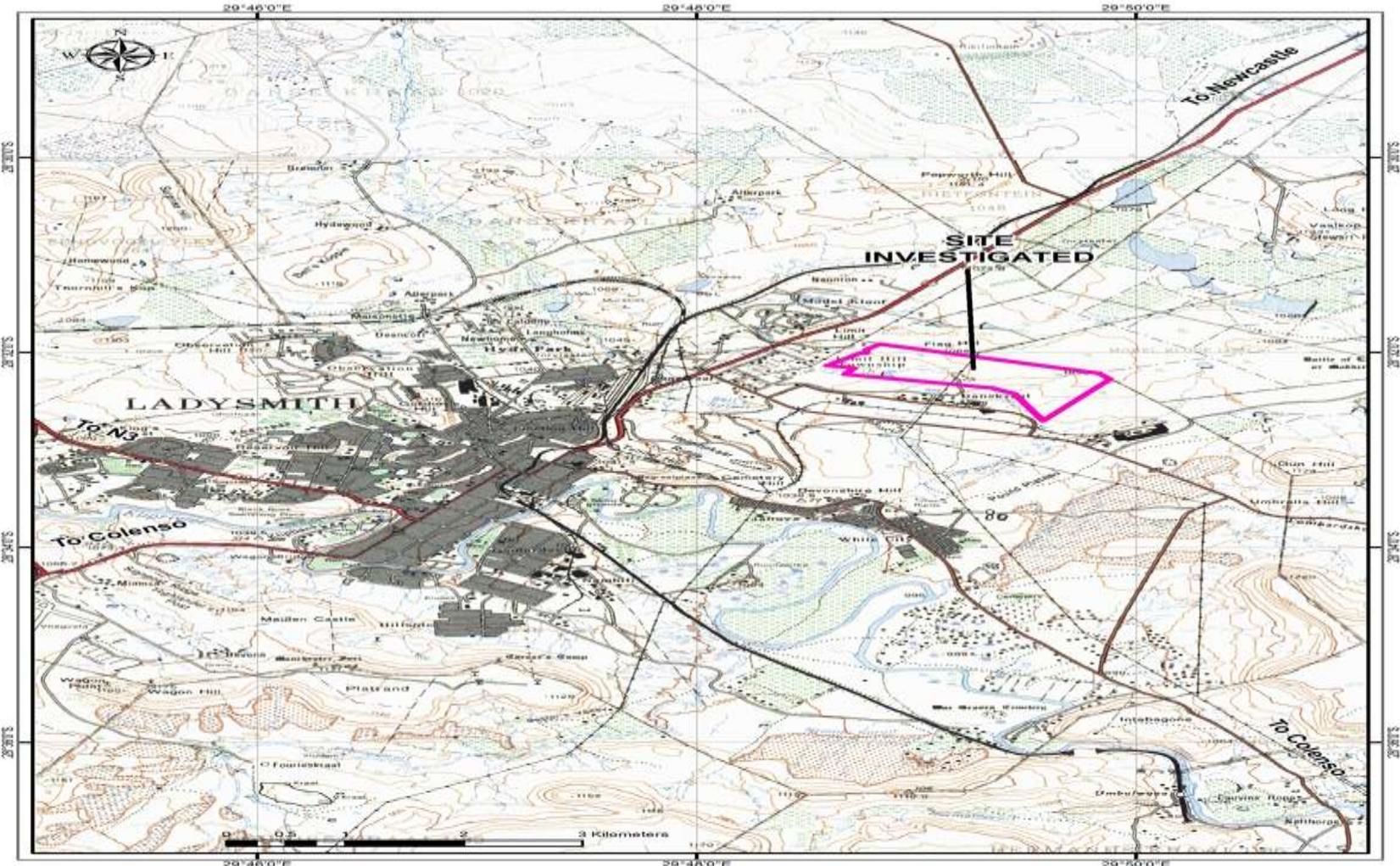


Figure 1. Locality Plan

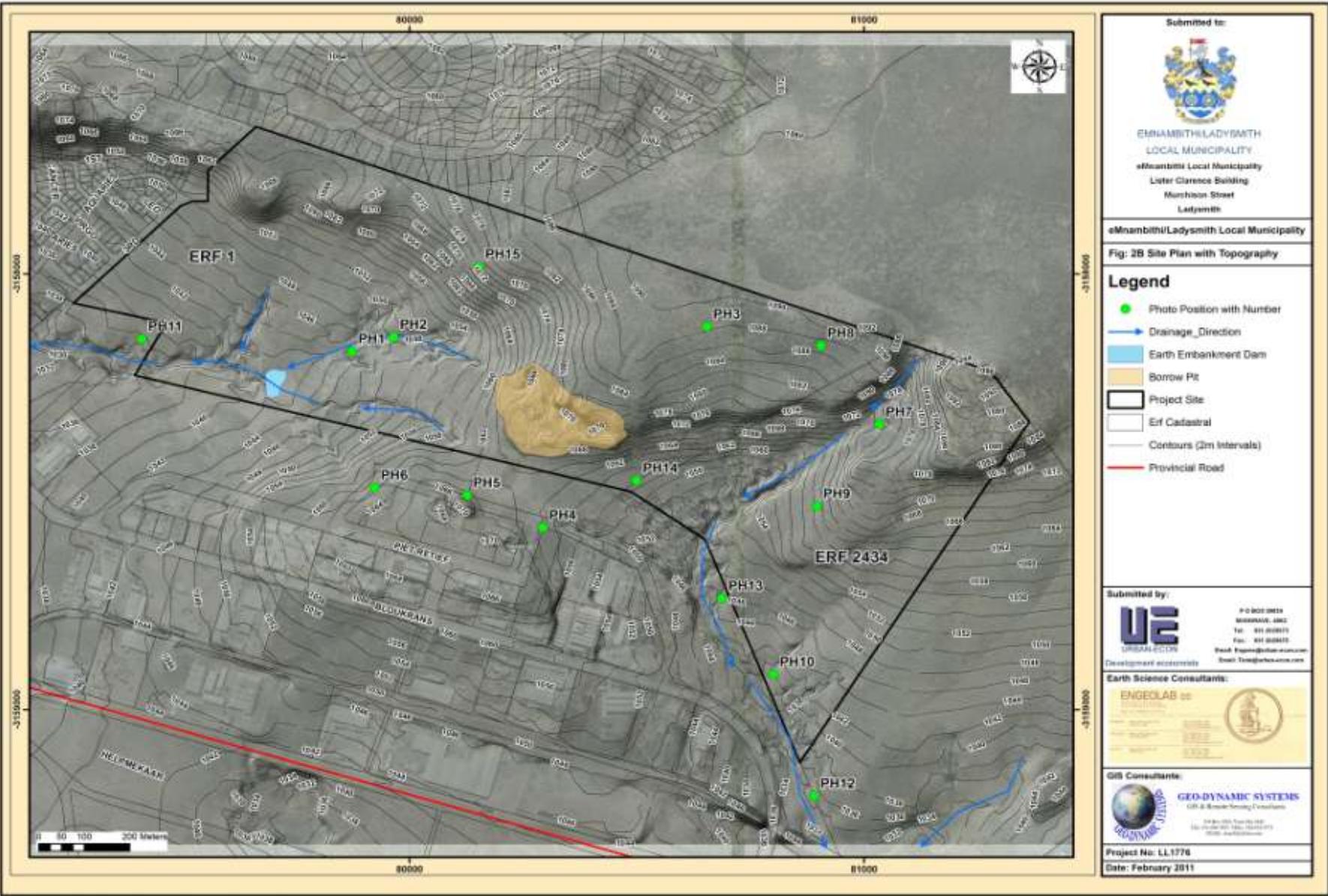




THE GREATER EMNAMBITHI/LADYSMITH LOCAL MUNICIPALITY  
SOCIAL HOUSING FEASIBILITY STUDY



THE GREATER EMNAMBITHI/LADYSMITH LOCAL MUNICIPALITY  
SOCIAL HOUSING FEASIBILITY STUDY

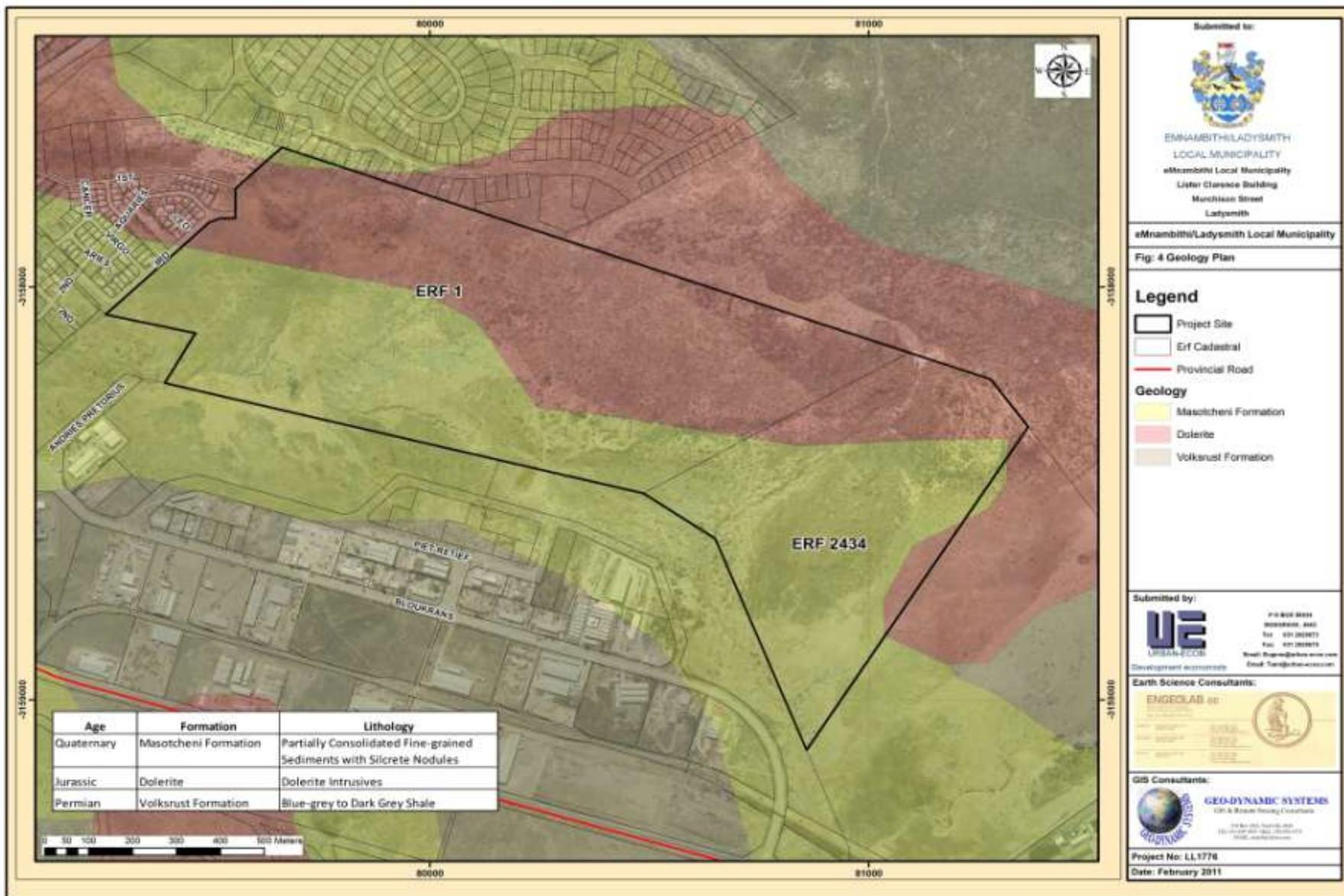








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SOCIAL HOUSING FEASIBILITY STUDY



Submitted to:

EMNAMBITHI/LADYSMITH  
LOCAL MUNICIPALITY  
eMnambithi Local Municipality  
Lister Clarence Building  
Murchison Street  
Ladysmith

eMnambithi/Ladysmith Local Municipality

Fig. 4 Geology Plan

**Legend**

- Project Site
- Erf Cadastral
- Provincial Road

**Geology**

- Masotcheni Formation
- Dolerite
- Volksrust Formation

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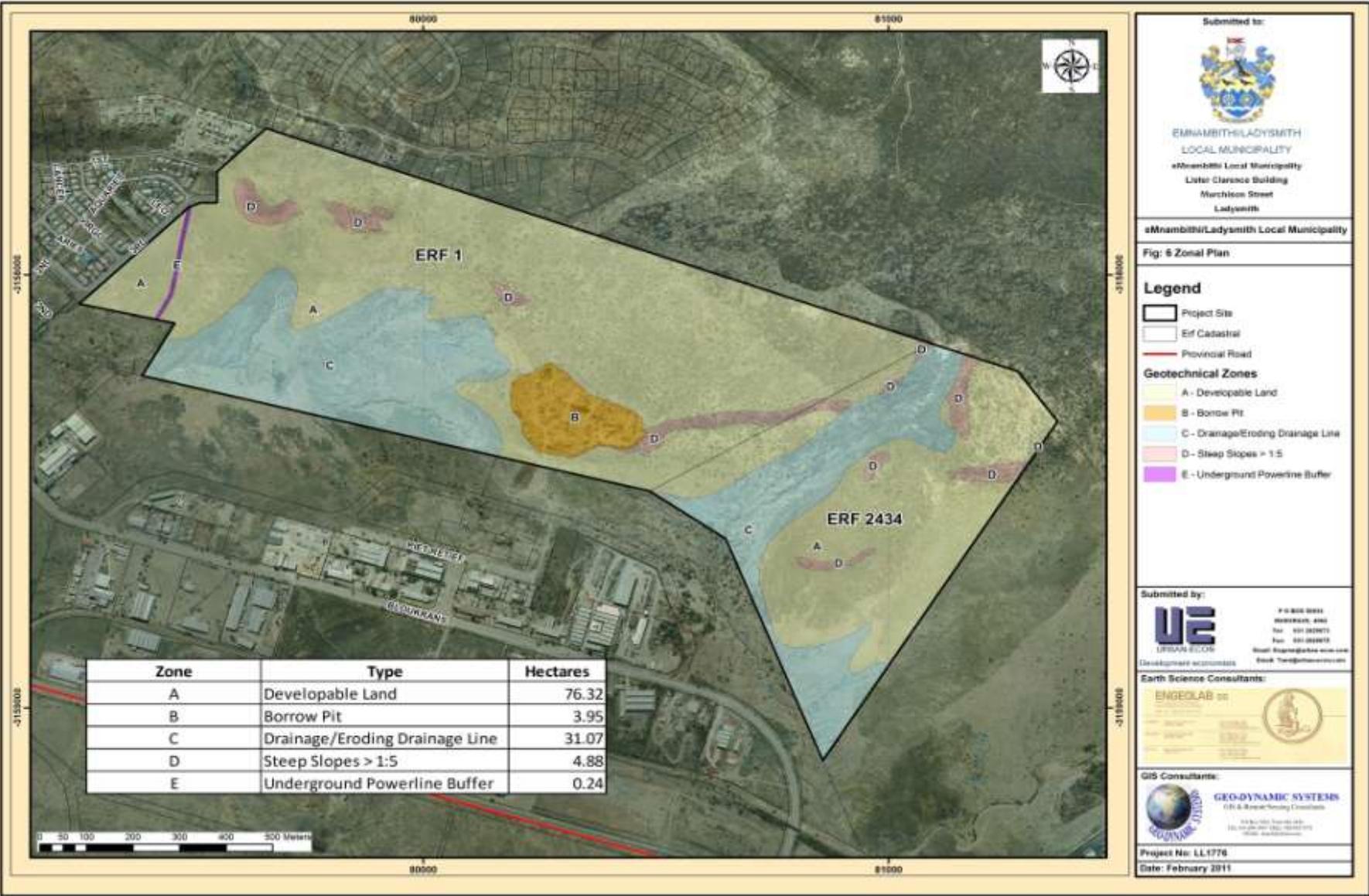
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Project No: LL1776  
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