

# ENVIRONMENTAL IMPACT ASSESSMENT REPORT

*In terms of Procedures and format for submission of NEMA Section 24G Reports*

for:

**LEGALIZATION OF THE COMMENCEMENT OF THE CLEARANCE OF 361.4146 HA OF INDIGENOUS VEGETATION IN ORDER TO FORMALISE A TOWNSHIP, CURRENTLY KNOWN AS "PROMISED LAND" SITUATED ON A PORTION OF THE REMAINING EXTENT OF ERF 1 AND ERF 3 KURUMAN AND A PORTION OF THE REMAINING EXTENT OF PORTION 3 OF THE FARM KURUMAN RESERVE NO. 690 WITHIN THE GA-SEGONYANA LOCAL MUNICIPALITY, NORTHERN-CAPE PROVINCE**

Report Date: MAY 2019



**Compiled for:**

**GA SEGONYANA LOCAL MUNICIPALITY**



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*APPLICATION TO RECTIFY THE UNLAWFUL COMMENCEMENT OR  
CONTINUATION OF LISTED ACTIVITIES IN TERMS OF SECTION 24G  
OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NO 107  
OF 1998)*

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## **1. PROJECT TITLE**

Legalization of the commencement of the clearance of 361.4146 ha of indigenous vegetation in order to formalise a township, currently known as "Promised Land" situated on a Portion of the Remaining Extent of Erf 1 and Erf 3 Kuruman and a Portion of the Remaining Extent of Portion 3 of the Farm Kuruman Reserve No. 690 within the Ga-Segonyana Local Municipality, Northern-Cape Province.

## **2. INTRODUCTION**

AB Enviro Consult was appointed by the Ga-Segonyana Local Municipality to apply for Authorization for the "Proposed" Establishment of a Township on the site. A site inspection held on 22 May 2018 revealed that construction activities on site has already commenced. The EAP then arranged a meeting with Ms. Tshepiso Lekwene from the DENC and she confirmed that the process that will have to be followed will be to apply for the rectification of unlawful commencement or continuation of a listed activity in terms of Section 24G of the National Environmental Management Act, 1998 ( Act No. 107 of 1998) as amended.

The Applicant was not aware that they required Environmental Authorization before starting with provision of essential services in the area.

The intension of this application is thus to legalise the commencement of the clearance of 361.4146 ha of indigenous vegetation in order to formalise a township, currently known as "Promised Land" situated on a Portion of the Remaining Extent of Erf 1 and Erf 3 Kuruman and a Portion of the Remaining Extent of Portion 3 of the Farm Kuruman Reserve No. 690 within the Ga-Segonyana Local Municipality, Northern-Cape Province.

Informal settlement has already taken place on site, as such the need for housing in the area is highlighted. As in the rest of South Africa, there is a housing shortage in the area. This is undesirable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty.

Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The proposed development is to formalize a township and to provide the services associated with a town to people in the area. It was envisioned to develop the proposed town as early as 2015, however, detailed site surveys had to be conducted as the area is known for dolomitic instability. These have now been completed and formalization of the town is highly desirable as it will eliminate the negatives associated with informal housing as described above.

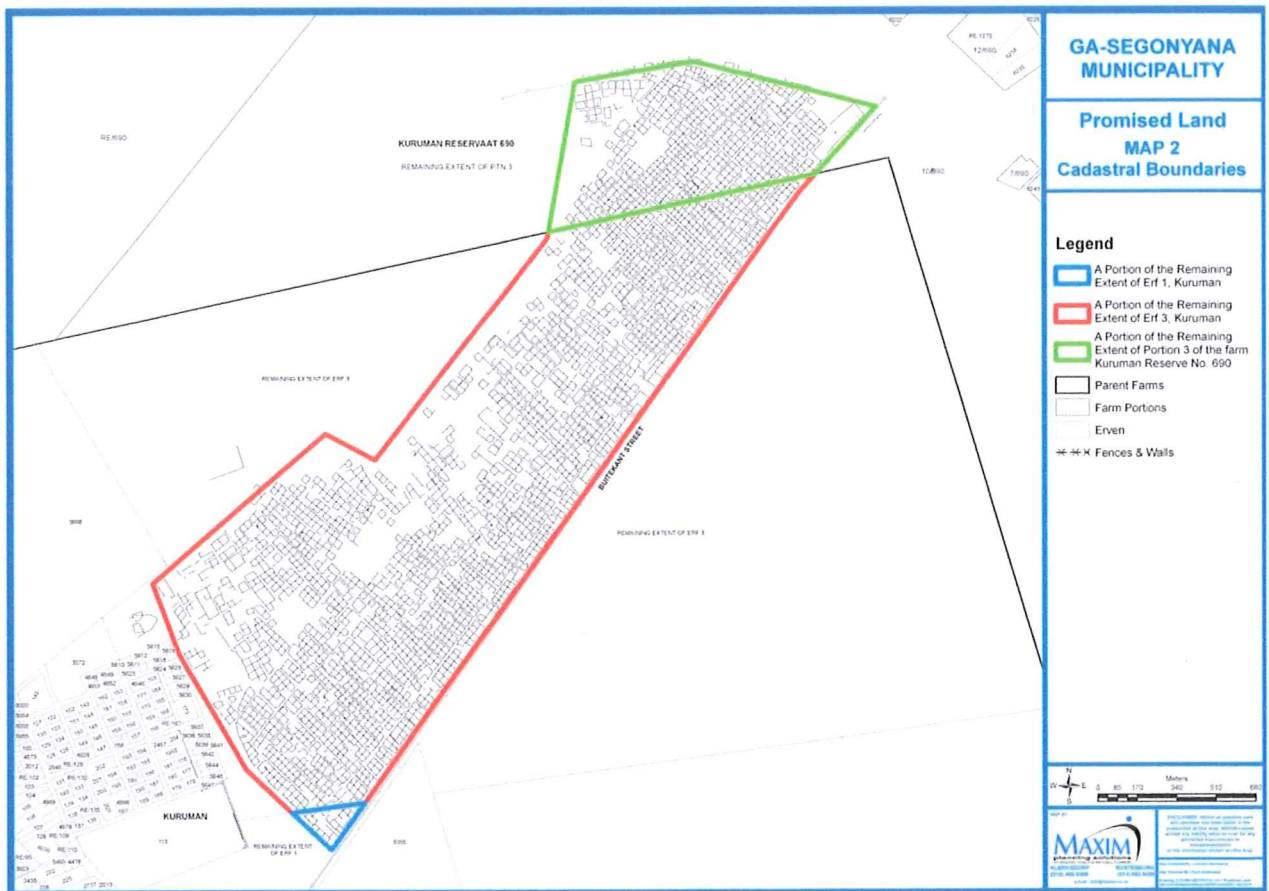
Vegetation at much of the site is transformed or modified. Informal buildings, roads, numerous scraped areas and fences are found widespread on site. Informal dumping occurs. Various alien invasive weeds are widespread at the site. Some fragmented and ecologically disturbed patches of indigenous vegetation remain at some parts. *Vachellia erioloba* (Camel Thorn) trees remain and some appear to be conserved even in areas that are otherwise cleared. A number of indigenous tree-, shrub-, herb- and grass species are present at the site; often widespread pioneer species well-adapted to disturbed areas

As soon as the applicant became aware that Environmental Authorization was required, AB Enviro-Consult was appointed to obtain the necessary authorizations. An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration. Desk top studies were conducted and alternatives assessed. Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined. A Botanical Specialist was appointed to conduct a Botanical survey of the area. This included a vegetation and habitat study to determine possible fatal flaws and to identify sensitive / no-go areas.

A full Public Participation Process was followed to obtain inputs from interested and affected parties. All the information obtained from the above mentioned processes was used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa. The inputs from the Specialists, interested and affected parties, together with the knowledge of the EAP was used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

#### *2.1 DETAILS OF PROPERTY ON WHICH UNLAWFUL ACTIVITY TOOK PLACE:*

Portion of the Remaining Extent of Erf 1 and Erf 3 Kuruman and a Portion of the Remaining Extent of Portion 3 of the Farm Kuruman Reserve No. 690 within the Ga-Segonyana Local Municipality, Northern-Cape Province.



The coordinates of the site are:

**Latitude:** 27°25'05.60" South

**Longitude:** 23°27'38.63" East

The Surveyor-general 21 digit site reference number is:

C	0	4	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	1
C	0	4	1	0	0	0	3	0	0	0	0	0	0	0	3	0	0	0	0	3
C	0	4	1	0	0	0	3	0	0	0	0	0	6	9	0	0	0	0	0	3

Street address:	Buitekant street – see Locality Map for extent
Magisterial District or Town:	Ga-Segonyana Local Municipality and John Taolo Gaetsewe District Municipality.

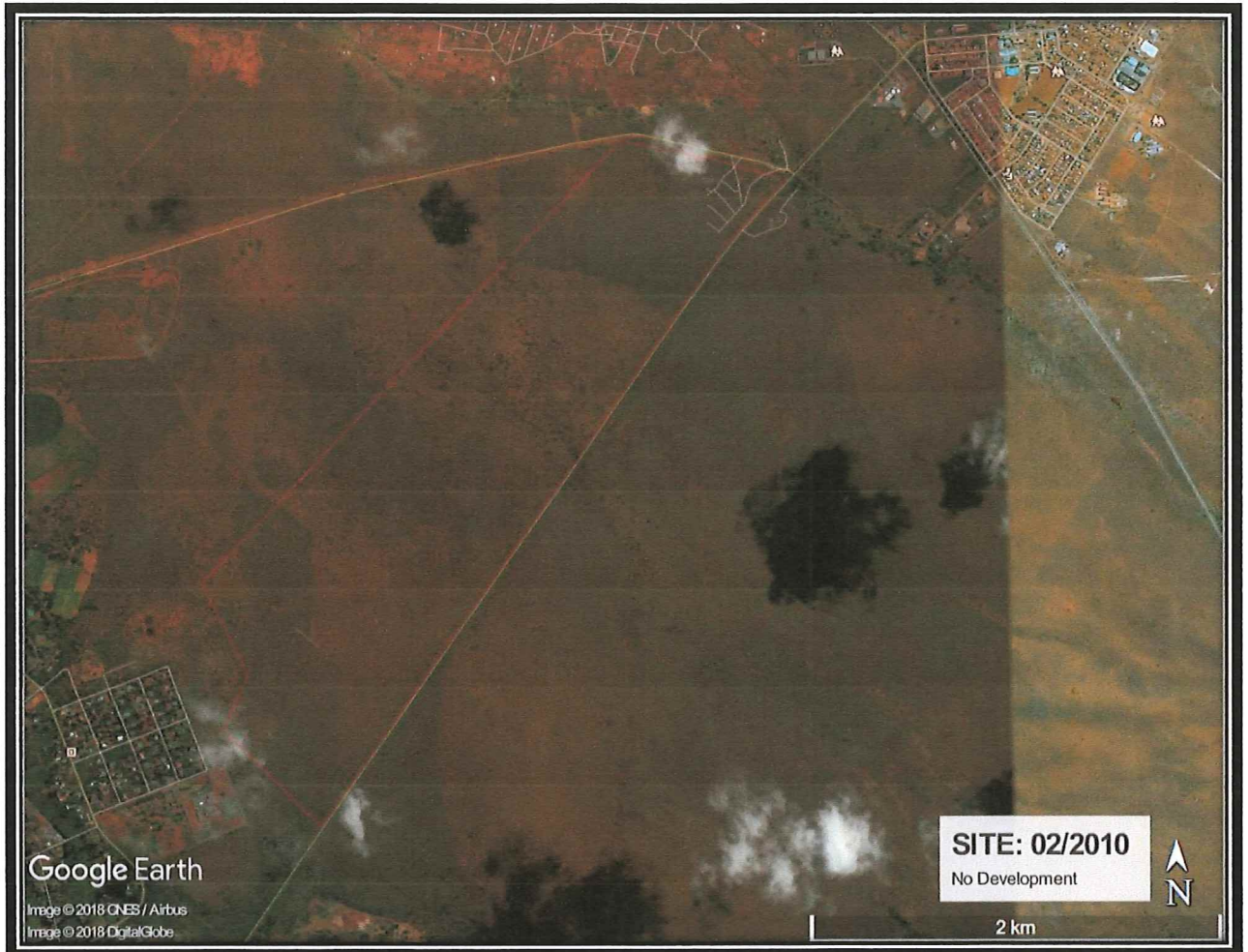
Please see Appendix A.1 for a copy of the Locality map.

## 2.2. DESCRIPTION OF THE ACTIVITY

### What has been completed/ commenced with:

Satellite imagery shows the progression of informal settlement on site as indicated below:

**The site: Pre- Informal settlement 02/2010**







Google Earth  
Image © 2018 CNES / Airbus  
Image © 2018 DigitalGlobe

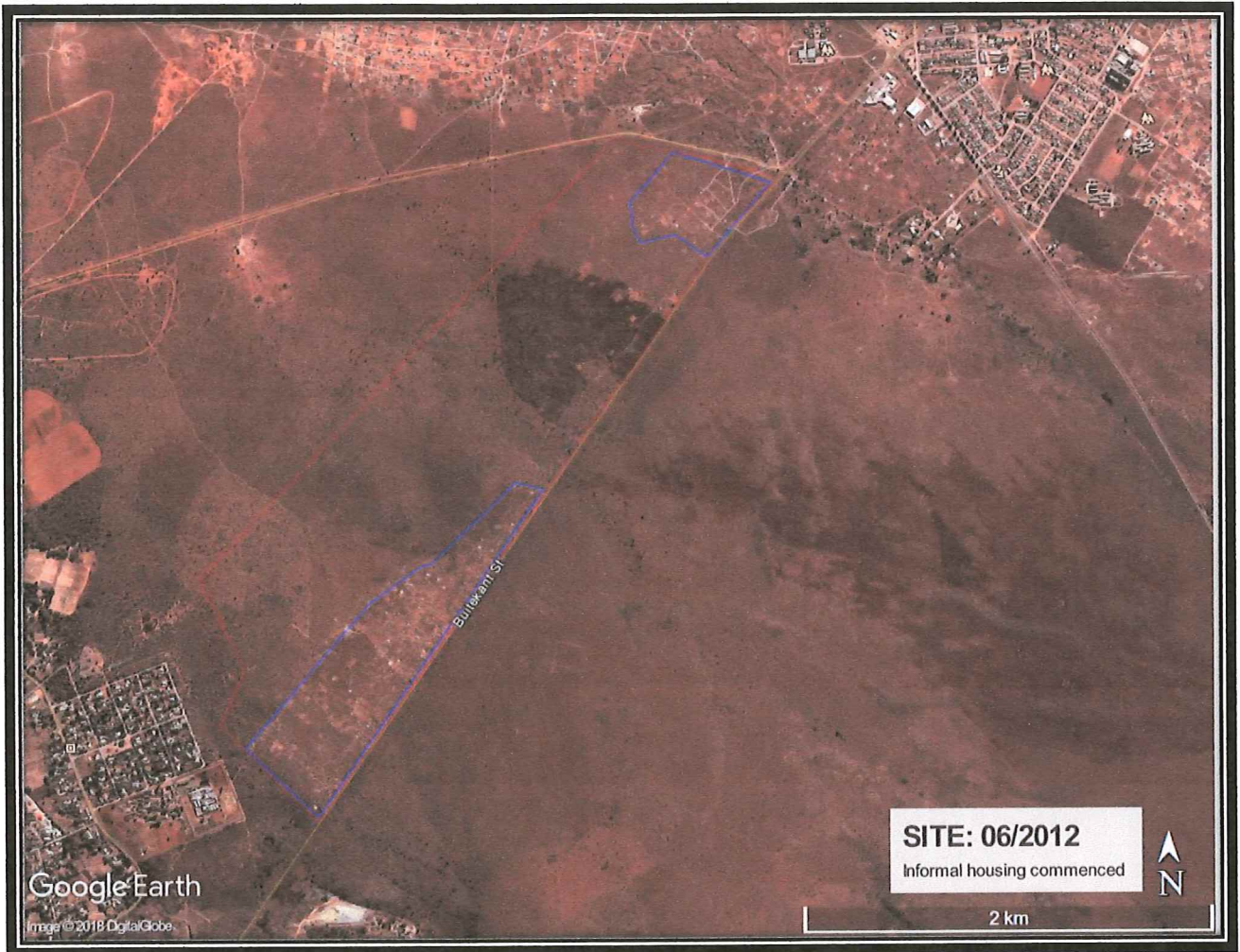
**SITE: 02/2010**  
No Development



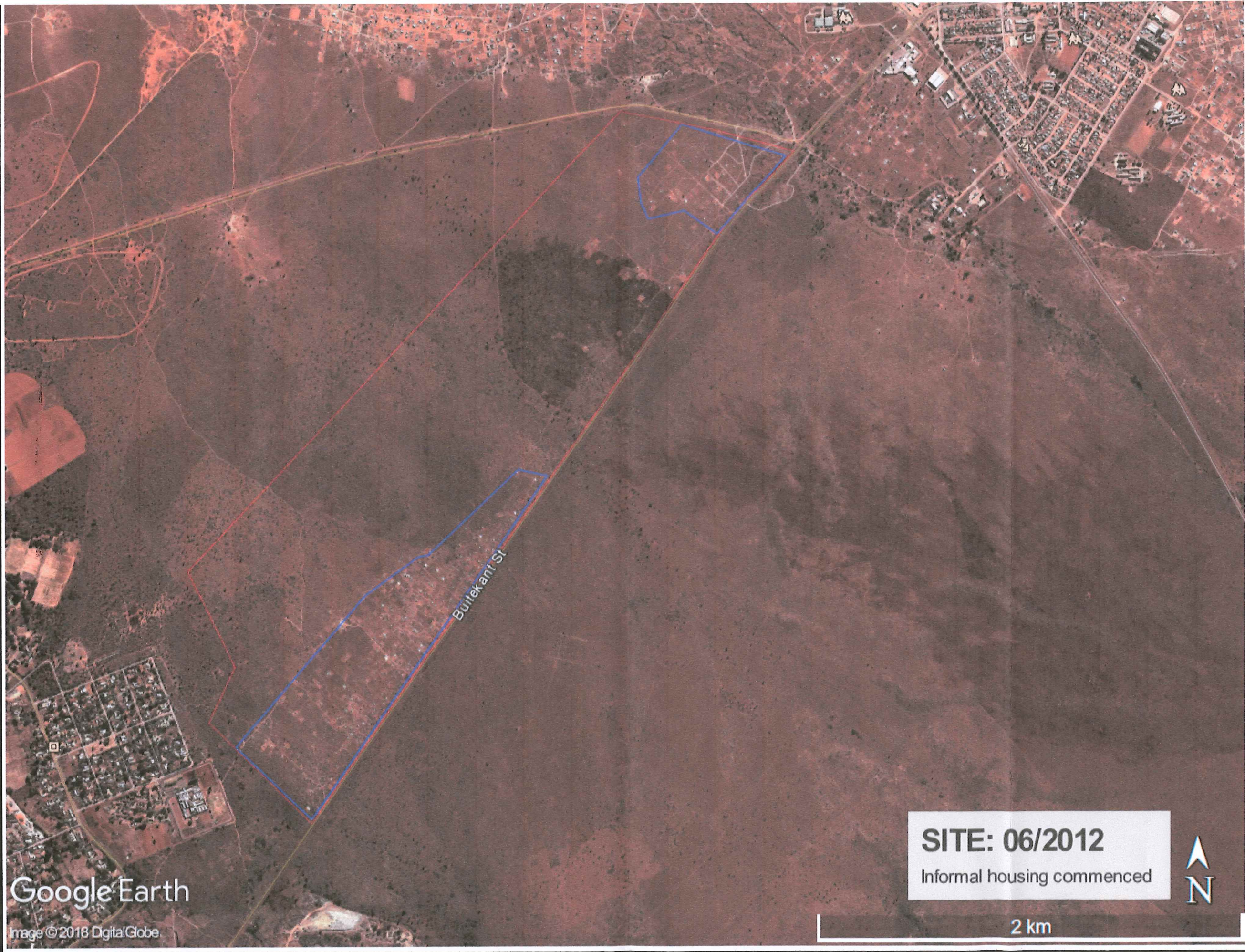
2 km



The Site: Informal Settlement Commenced on Northern (Approximately 206 816 m<sup>2</sup>) and Southern (Approximately 647 878 m<sup>2</sup>) sections of the site 06/2012







Google Earth

Image © 2018 DigitalGlobe

**SITE: 06/2012**

Informal housing commenced



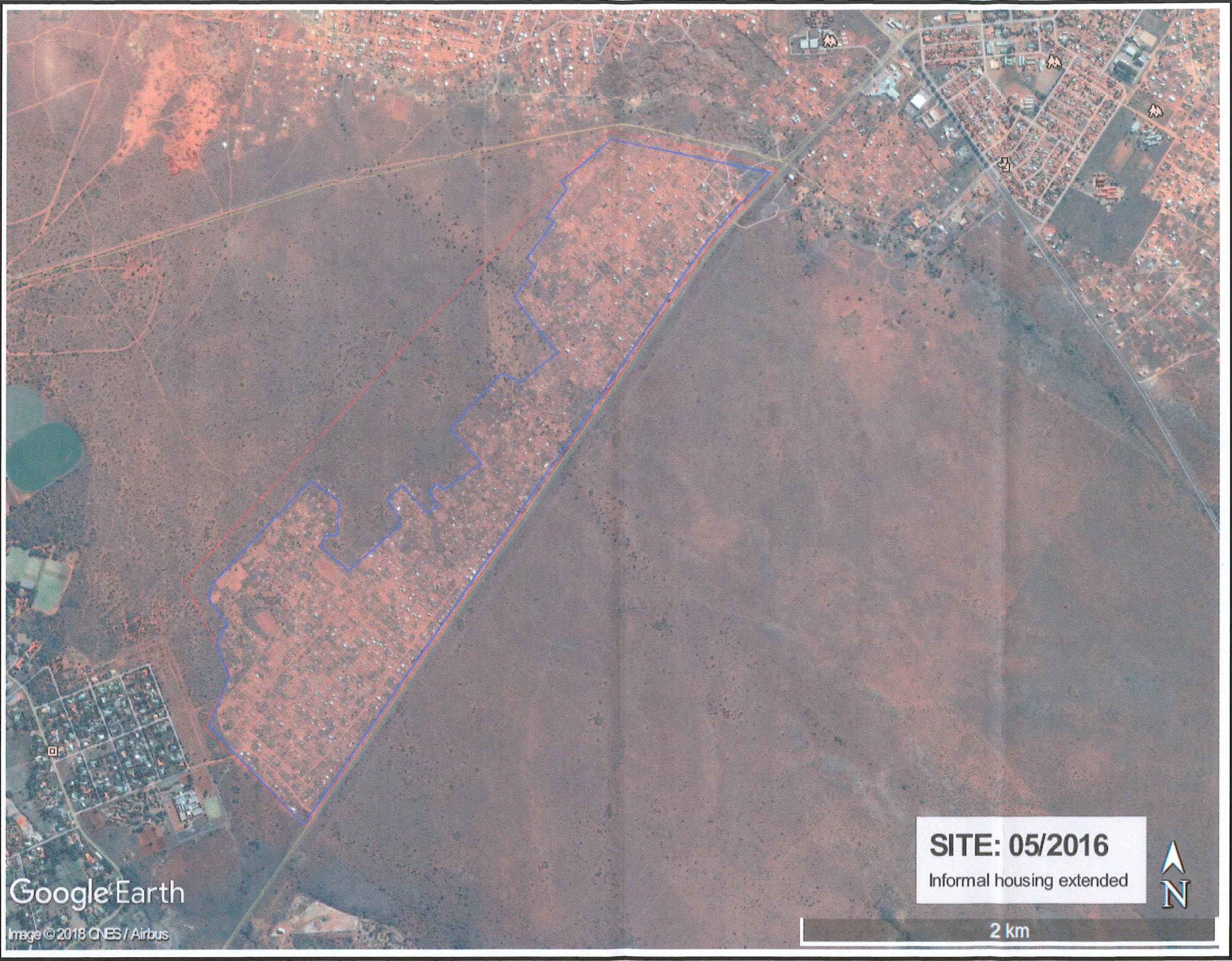
2 km



The Site: Informal Settlement Extended (Approximately 2 331 895 m<sup>2</sup>) 05/2016







Google Earth

Image © 2018 CNES / Airbus

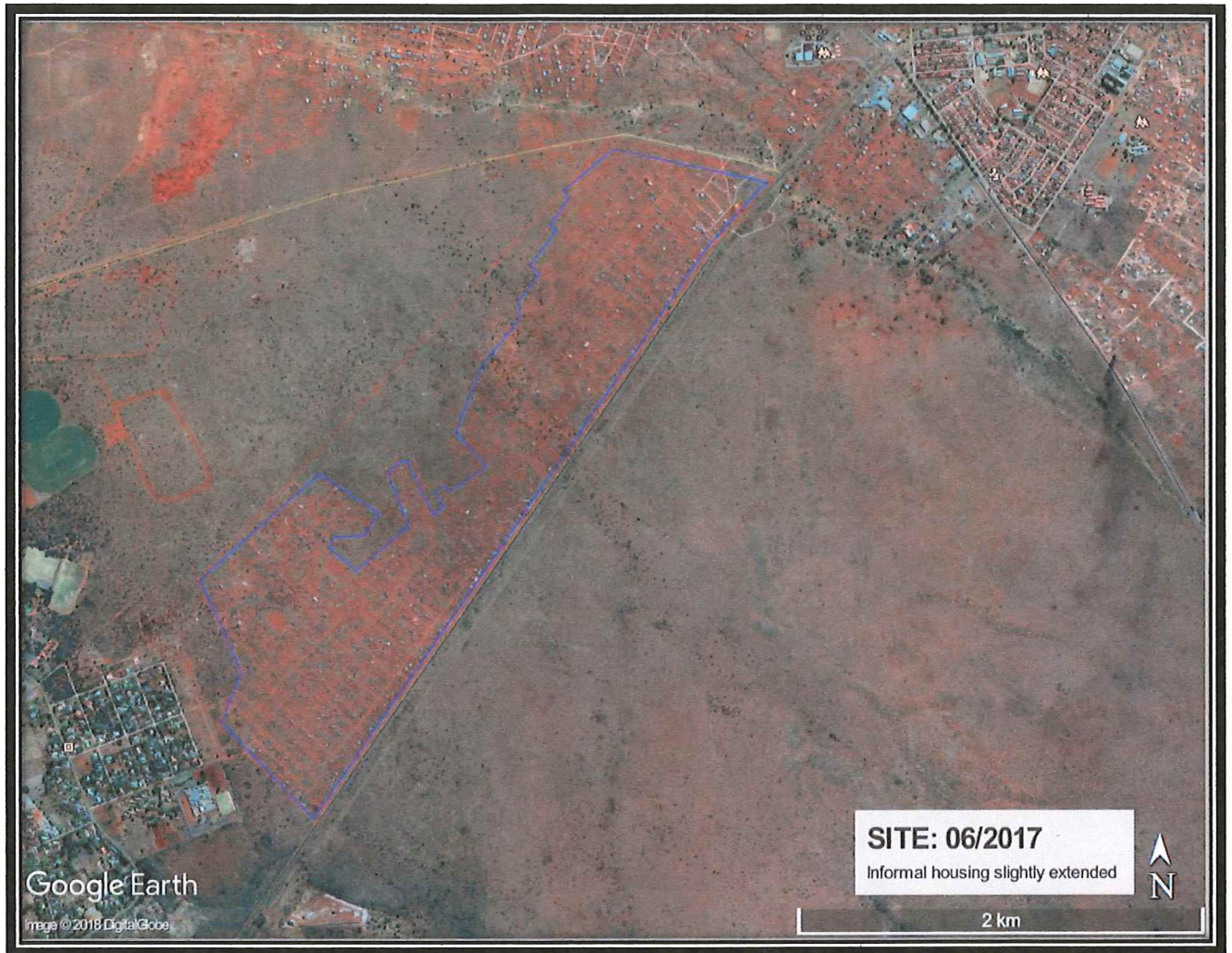
**SITE: 05/2016**  
Informal housing extended



2 km



**The Site: Informal Settlement slightly extended (Approximately 2 542 508 m<sup>2</sup>) 06/2017**



A physical land use survey was conducted by Maxim Planning Solutions (The appointed Town and Regional Planners) on the 19th and 20th of June 2018 at Promised Land Informal Settlement. Mr. Bertus Eiman Councillor of Ga-Segonyane Local Municipality assisted with the land use survey, and corresponded with the residents. **Map: Land Uses** refers:





Google Earth

Image © 2018 DigitalGlobe

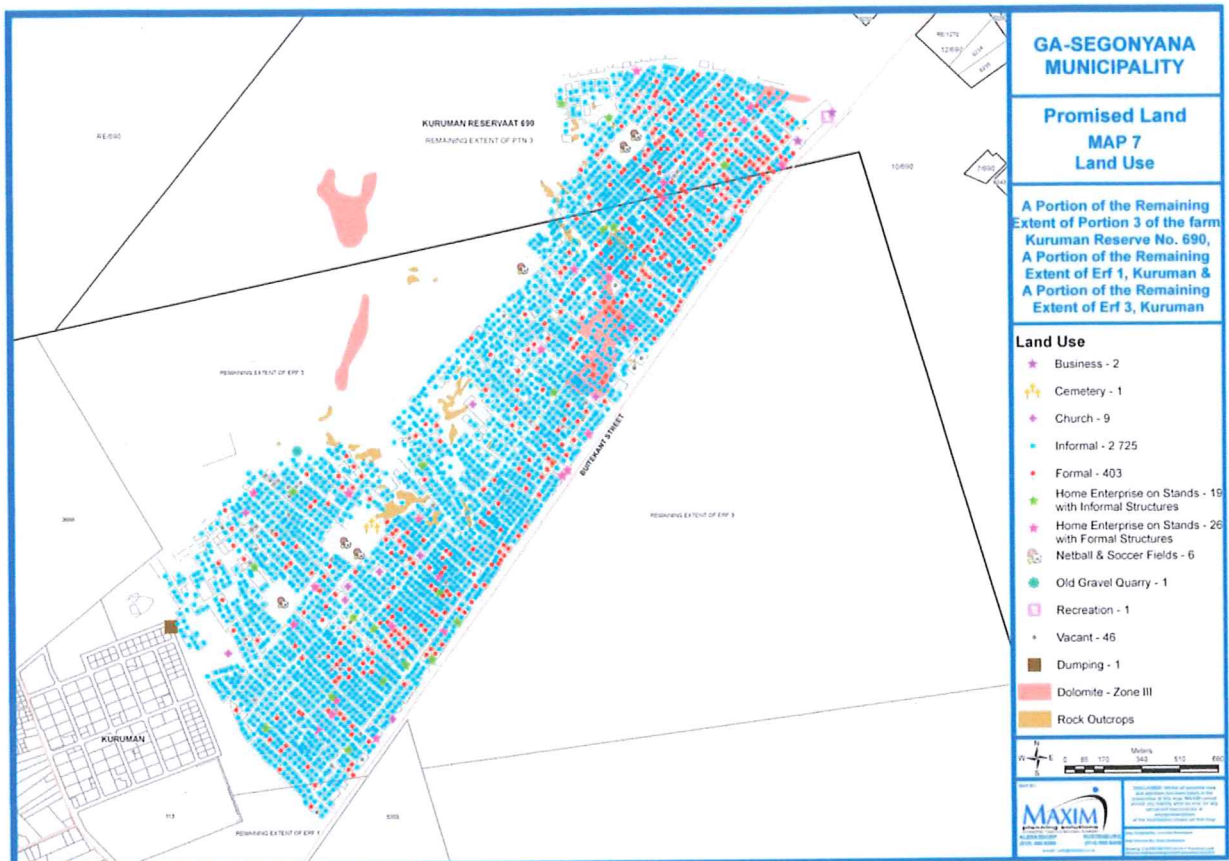
**SITE: 06/2017**  
Informal housing slightly extended



2 km



PROMISED LAND – LAND USE	
Land Use	Number
• Business	2
• Formal Houses	429
• Informal Houses	2744
• Rental rooms on stands with formal house	2
• Rental rooms on stands with informal structures	2
• Church	9
• Cemetery	1
• Informal Sports Field	6
• Recreation	1
• Home enterprise on stands with formal houses	24
• Home enterprise on stands with informal structures	17

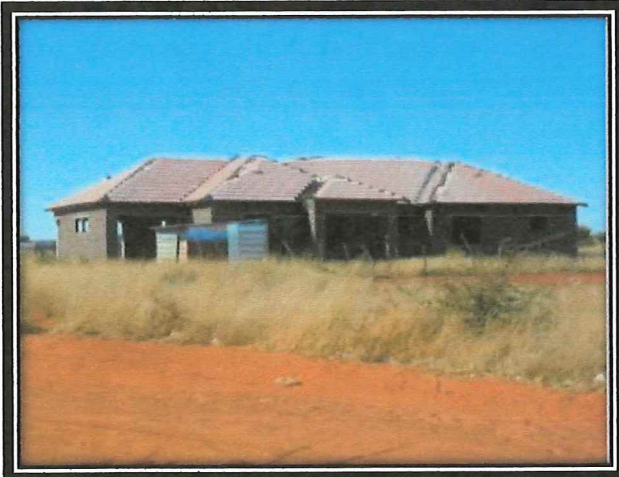
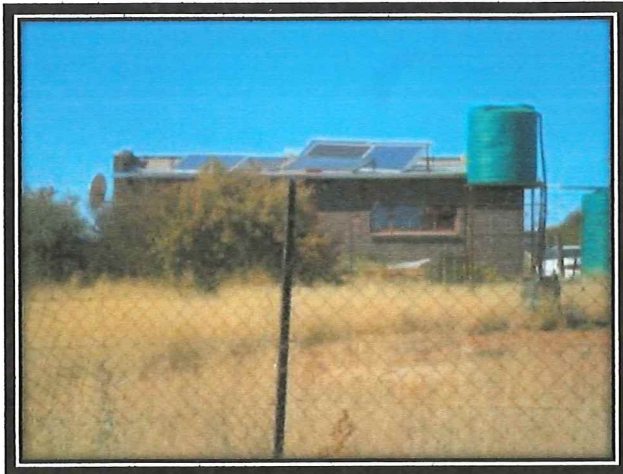


## RESIDENTIAL DEVELOPMENT

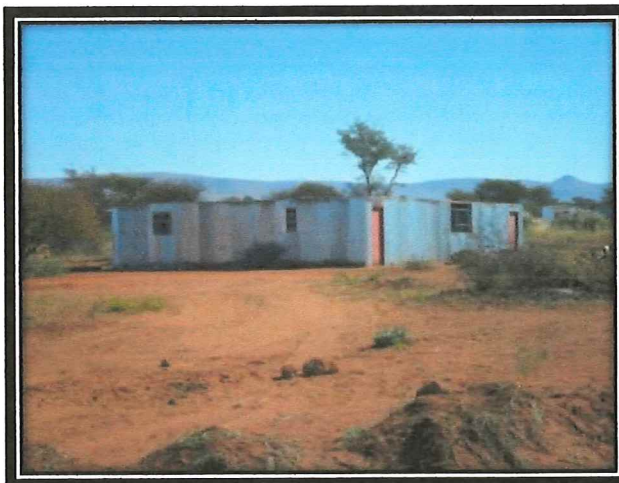
During the survey it was noticed that the settlement is still expanding as more people are erecting structures in the hopes of formalised houses and infrastructure.

### Formal Houses:

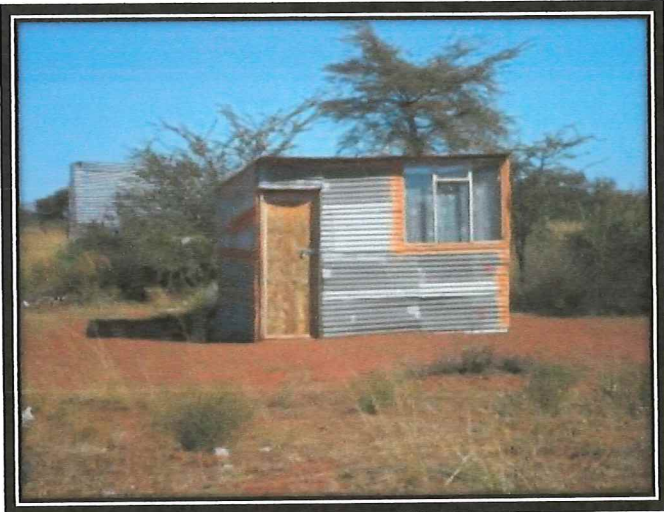




**Informal structures:**



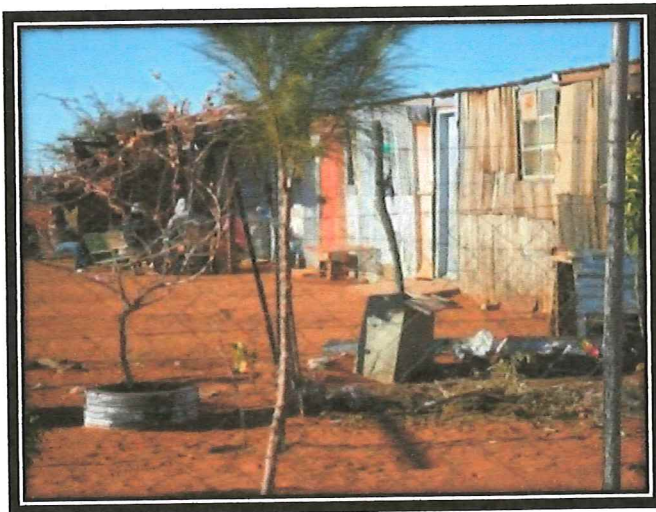




The average plot sizes of the formal and informal houses are  $\pm 26\text{m}$  by  $\pm 26\text{m}$  ( $\pm 676\text{m}^2$ ).

### **Rental Rooms**

Rental rooms are situated on two stands where formal houses are situated and two stands where informal structures are situated.



- Since 2016 during the compilation of the Social Facilitation Report the number of households in Promised Land increased from 1151 to 3173 households currently
- Based on the average persons per household, according to the Social Facilitation Report 2016, the total population of Promised Land is estimated at ± 8567 people (according to the 2016 report the average household size varies between 1,7 persons per household to 3,5 persons per household, with an average of 2,7 persons per household)
- The average plot / stand sizes of formal and informal houses is ± 676m<sup>2</sup> (± 26m X 26m)

### Business Development

The following type of business developments (formal and informal) were identified in the village:

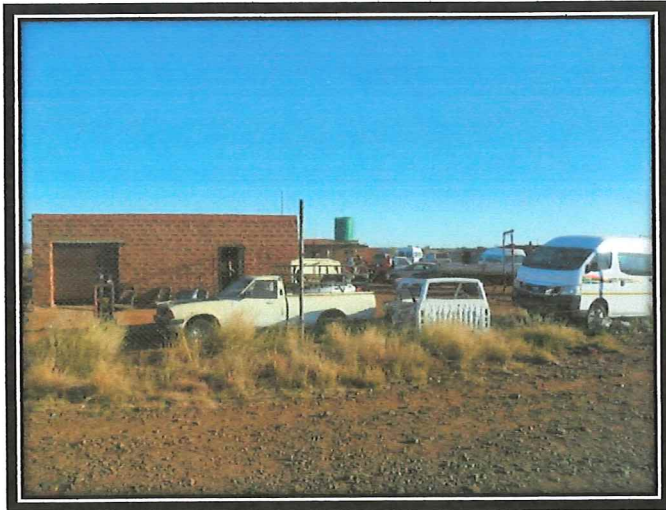
#### ▣ Formal Business

- Car wash
- Selling of soil
- Wedding venue



#### Home enterprises on stands / plots with formal houses

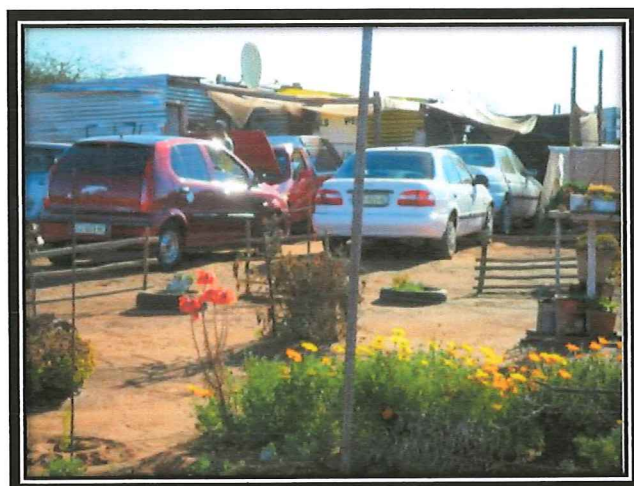
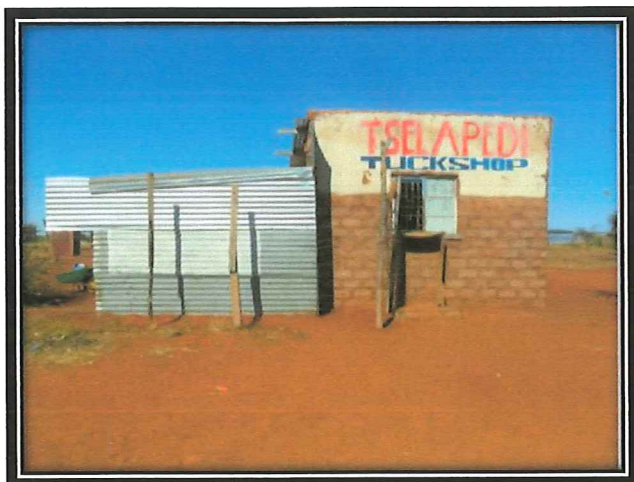
Formal + gas & electricity	1
Formal + Motor Workshop	3
Formal + Supermarket	1
Formal + Tuck Shop	19
<b>TOTAL</b>	<b>24</b>



**Home enterprises on stands / plots with informal residential structures**

Informal + Hair Salon	2
Informal + Motor Workshop	3
Informal + Recycling	1
Informal + Tuck Shop	6
Informal + Tavern	1
<b>TOTAL</b>	<b>13</b>





**Community facilities**

Churches	9
Cemetery	1
Informal Sports fields:	
Netball Field	2
Soccer Field	4
Informal crèches	



Vegetation at much of the site is transformed or modified. Informal buildings, roads, numerous scraped areas and fences are found widespread on site. Informal dumping occurs. Various alien invasive weeds are widespread at the site. Some fragmented and ecologically disturbed patches of indigenous vegetation remain at some parts. *Vachellia erioloba* (Camel Thorn) trees remain and some appear to be conserved even in areas that are otherwise cleared. A number of indigenous tree-, shrub-, herb- and grass species are present at the site; often widespread pioneer species well-adapted to disturbed areas.















Informal developments had ecological impacts at the site. Loss of natural habitat with indigenous vegetation took place owing to informal developments. While it cannot be categorically stated that no threatened, near-threatened plant species were found at the site prior to the informal development, there are no distinct indicators that such species would have been at the site. Declining plant species such as *Boophone disticha* (Poison Bulb) could have been present at the site owing to suitable habitat. Some loss in numbers of the Protected tree species *Vachellia erioloba* (Camel Thorn), could also have taken place at the site. A number of these Camel Thorn trees remain on site and it also appear to be specifically conserved at some of the informal settlement areas.

#### **What still has to be completed?**

The application deals with the formalization of this Township. This will include service provision and will involve re-layout of the Township. The Council for Geoscience has conducted a survey of the area and it has become apparent that some of the informal houses will have to be relocated as dolomite occurs on site. This factor will influence the final layout plan. The layout plan will determine where roads (Internal and access) will be constructed. The layout plan will also address the issue of storm water.

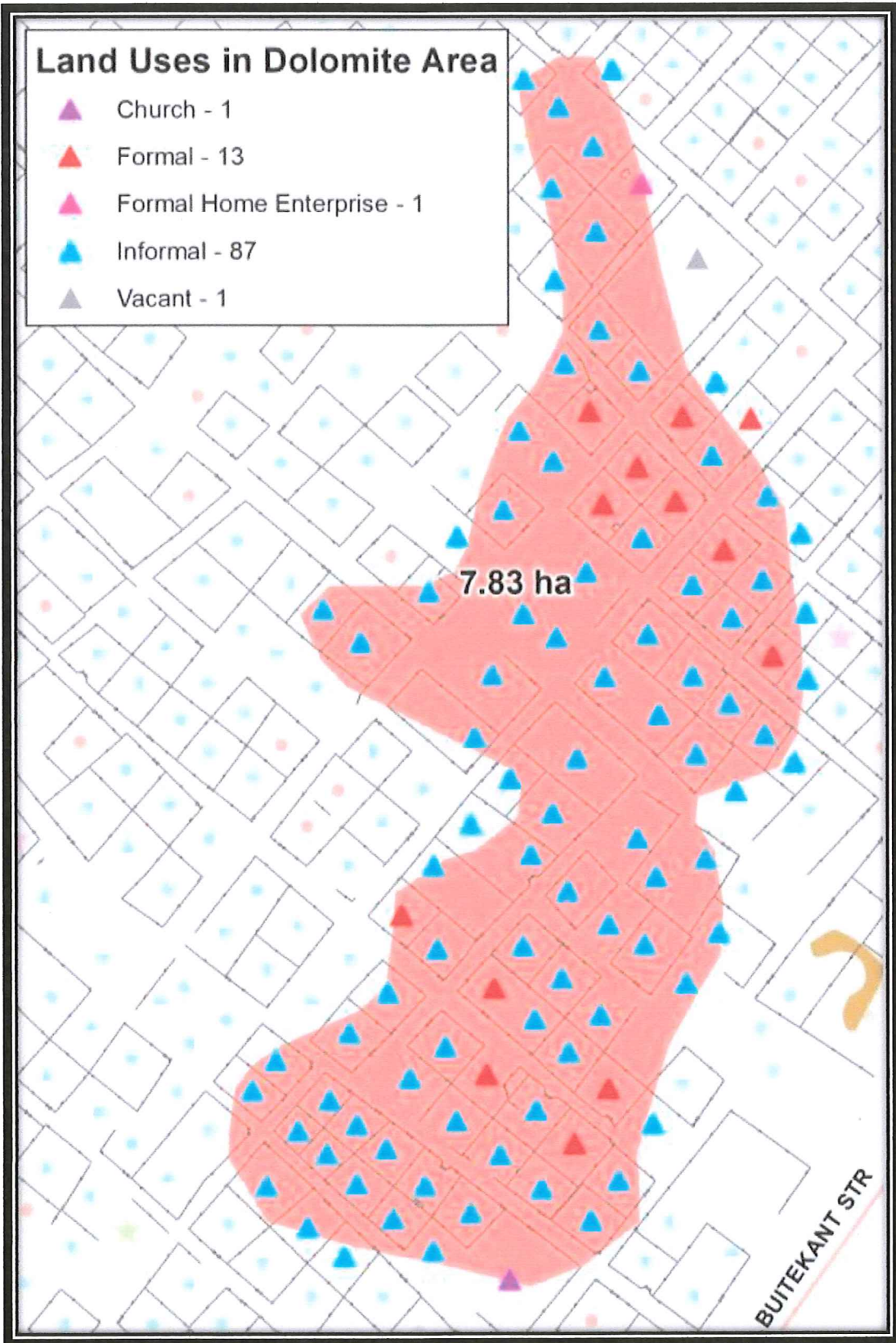




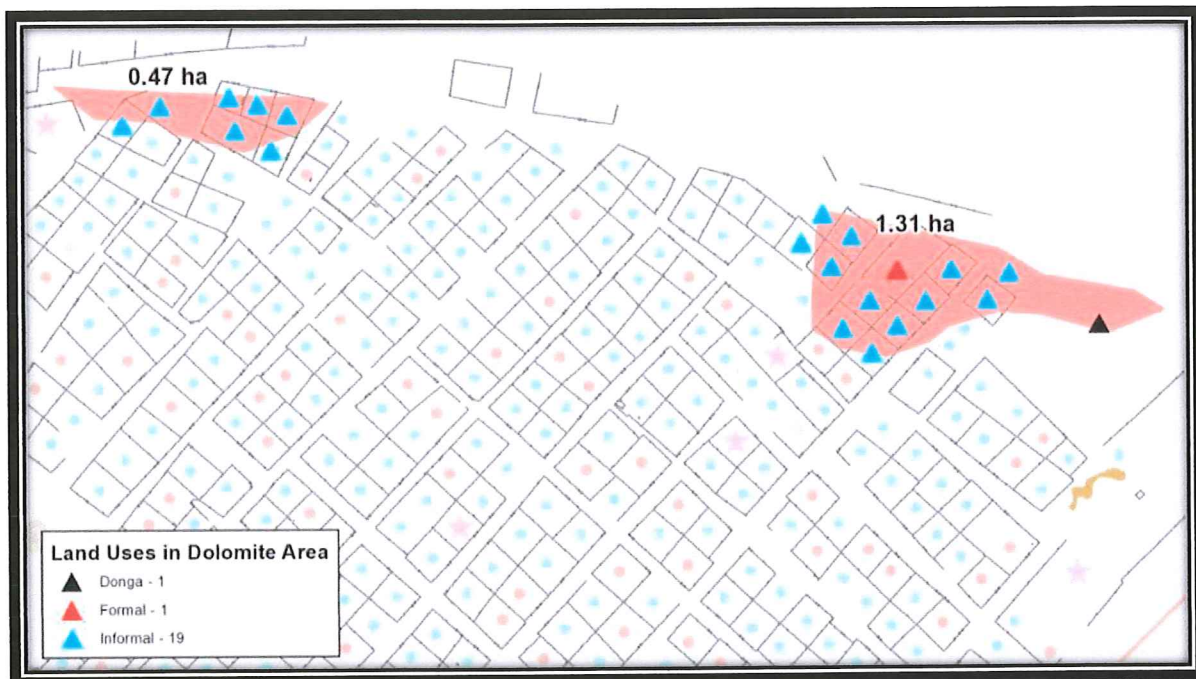
<b>LEGEND</b>						
Proposed Zoning	Proposed Land use		Number of Erven	Erf Number	Area in Ha	% of Area
Residential zone III	Flats, Residential building		2	*	3.2142ha	%
Residential zone IV	Residential house, low cost housing (Minimum 350m <sup>2</sup> )		5469	*	228.7591ha	%
Business zone I	Business premises including, Institution, Authority use, Flats, Residential building		1	*	1.1486ha	%
Business zone II	Shop		11	*	2.1415ha	%
Institutional zone I	Place of instruction (Primary School)		2	*	6.1037ha	%
	Place of instruction (Creche)		3	*	0.3626ha	%
Institutional zone II	Public place of worship (Church)		12	*	1.6673ha	%
Institutional zone III	Institution (Thusong Centre/Community Hall)		1	*	0.4484ha	%
Open space zone I	Public open space		28	*	20.5678ha	%
Open space zone II	Private open space (Sportsfield)		2	*	2.4894ha	%
	Private open space (Cemetery)		1	*	0.3359ha	%
Transport zone I	Transport use (Taxi rank)		1	*	0.2664ha	%
Transport zone II	Public street		124	*	80.9733ha	%
Authority zone I	Authority use (Municipal)		5	*	6.9364ha	%
<b>TOTAL</b>			5662	*	361.4146ha	%

### Impact of dolomite (Zone III) on residential development

A total of 121 households are situated on Zone III dolomite arrears of which 15 are formal houses and 106 informal houses.







Water and sewer pipelines will be installed in order to provide water and sanitation for the area.

## WATER

In accordance with the water demand calculations the study area will need on average 3.8 ML per day. In accordance with the Ga-segonyana water master plan the municipality will not provide localised low-level storage and in future will have only one regional bulk water storage facility, which is the Bankhara-Bodulong reservoir complex. It is therefore recommended that a 500mm Ø pipeline be used to connect the study area to the southern bulk water system. The recommendation is also in line with current plans of the to provide a bulk ring feed from the Bankhara-Bodulong Reservoirs to all surrounding towns of Ga-Segonyana. The bulk pipeline which will be ±7.75km in length will therefore form part of this ring from Kuruman to Promised Land via Wrenchville. The bulk line will be connected to both elevated steel tanks in Kuruman (Masl 1349m) to fed directly into highest point in the study area's future water reticulation network (Masl.1326m). It is predicted/calculated that a 500mm diameter pipe line will be able to transfer water from the elevated steel reservoirs to the highest point in Promised Land at 150 ℓ/s with a static head of at least 27 meters or 2.7 bar (270 kpa).

**Please note that these upgrades does not form part of this application.**

## SANITATION

The existing Kuruman and Mothibistad bulk sewer infrastructure cannot accommodate the calculated/estimated sewer inflows from the study area. The study area will therefore need dedicated main outfall sewer lines. A pump station and rising main (pump line) to a Waste water treatment works. The current planned upgrades for both the Kuruman WWTW and the Mothibistad Oxidation Ponds still result with both plants having no additional capacity to accommodate the study area's outflow sewage.

### Main Outfall Pipelines

It is envisaged that the internal sewer network will require main collector sewer lines ranging from 200mm Ø to 315mm Ø to handle the PWWF of 3 282 024.33 ℓ/day or 37.986 ℓ/s. The relatively flat terrain slopes

to the north west and is expected that all outfall sewer lines to confluence at this lowest point, where a pumpstation will be required to transfer the sewage to either Kuruman WWTW or Mothibistad's Oxidation Ponds via a rising main.

The following outfall sewer pipe sizes and lengths have been identified for the Study Area:

1. 200mm Ø PVC-U 400KPa = 2 500m
2. 250mm Ø PVC-U 400KPa = 1 500m
3. 315mm Ø PVC-U 400KPa = 700m

### Pump Station and Rising Main

In accordance with the analysis and calculations it can be deduced that a new pump station and rising main with a pumping flow rate of at least 38 ℓ/s is needed. Good practice guidelines recommend that pump system delivery rate of a major pump station should be at least 20% more than the expected PWWF. A pump system delivery rate of 45.6 ℓ/s will therefore be required to effectively transfer sewage from the study area to either WWTW.

Due to the Kuruman region having potential dolomitic strata conditions, the sewer rising main will have to comprise of continuous welded HDPE pipe lines in order to conform to the environmental and geotechnical requirements. The following infrastructure options have been identified for the Study Area:

### Bulk Sewer Requirement Options

It is expected that the study area will have an additional loading of 1.82 Mℓ/day on a waste water treatment works.

#### Option 1 (transfer sewage to the Kuruman WWTW)

The existing Kuruman WWTW has a capacity of 4.0Mℓ/day. The WWTW are currently not optimally functional but the planned refurbishment will ensure that the works can operate to its design capacity once refurbished. The anticipated 1.82 Mℓ/day additional loading from Promise Land was not considered in the refurbishment. According to the Municipality's master plan the effective volume of the three reactors (concrete structures) is approximately 5 200 m<sup>3</sup>. This means if duly equipped with effective aerators (mechanical optimization) the design capacity of the works can be increased to at least 4.8 Mℓ/day. Please note, some of the downstream processes such as secondary sedimentation (clarifiers), disinfection and sludge handling may also need to be upgraded accordingly. An additional 1.02 Mℓ/day upgrade on top of the refurbishment and mechanical optimization will still be required in order to ensure that the treatment plant is enabled to accommodate the full study area. In essence, the required upgrades should result in a treatment capacity of 5.82 Mℓ/day to accommodate Promised Land.

Requirements:

1. Dry well pump station capable of delivering at least 45.6 ℓ/s
2. 250mm Ø HDPE PE 100, 7 300 meters in length
3. Upgrade the Kuruman WWTW from a 4.0Mℓ/day to 5.82 Mℓ/day

#### Option 2 : Transfer sewage to the Mothibistad Oxidation ponds

Although the Mothibistad oxidation ponds is in line for an upgrade from a 0.4 Mℓ/day to 1.4 Mℓ/day treatment facility, this refurbishment/upgrade are measures to address the immediate current over loading of the treatment works including projected population growth for the same catchment area until 2021. It cannot accommodate any inflow from the study area unless major further upgrades are considered. The 1.82 Mℓ/day sewage that will be generated by the study area will require an upgraded Mothibistad WWTW



with a design capacity of at least 3.22 Mℓ/day. The current technology used in Mothibistad makes it uneconomical to expand to 3.22 Mℓ/day. A complete new conventional module of 3.22 Mℓ/day will have to be considered.

#### Option 3: Seodine Regional Waste Water Treatment Works:

Ga-Segonyana Municipality confirmed that a regional waste water treatment works west of Seoding is also considered for the future. This regional treatment works will treat all existing and future sewage flows generated by all the settlements in the municipal area besides Kuruman, Wrenchville and Bankara-Bodulong. This regional works will therefore also replace the Mothibistad Oxidation Ponds as the oxidation ponds is situated in an unstable dolomitic area. The Mothibistad and Promised Land (if option 2 is selected) will then need to be rerouted/extended to be linked with the regional works.

Requirements:

1. Dry well pump station capable of a delivery rate at least 45.6 ℓ/s
2. 250mm Ø HDPE PE 100, 2 250 meters in length
3. upgrading of Mothibistad oxidation ponds to conventional 3.22 Mℓ/day

**Please note that these upgrades does not form part of this application.**

### **2.3 Alternatives**

One of the objectives of an EIA is to investigate alternatives to the proposed project. The IEM procedure stipulates that the environmental investigation needs to consider feasible alternatives for any proposed development. Therefore, a number of possible proposals or alternatives for accomplishing the same objectives should be identified and investigated. In order to ensure that the proposed development enables sustainable development, feasible alternatives must be explored (S. Cliff, 2015).

The identification, description, evaluation and comparison of alternatives are important for ensuring a sound environmental scoping process. Alternatives should be considered as a norm within the Environmental Process (S. Cliff, 2015).

The alternatives considered for the proposed development includes land use alternatives (including the No-go option). The various alternatives will be assessed in this report, in terms of environmental, social and technical feasibility.

#### **Land Use Alternatives**

##### **Mixed land use township (Alternative 1)**

Alternative Site layouts have been developed for the proposed development.

The appointed Town and Regional planner have produced the proposed layout plan.

Although the emphasis is on housing, complimentary land uses have been included in the township. People want easy access to job opportunities, shops, banking facilities, clinics, etc. and want their living environment, such as residential townships to be placed at strategic positions with good access routes in close proximity to these amenities.

A mixed land use development is *socially responsible* based on the following:

- It covers the mixed and lower income bracket by providing a higher density housing option;

- The development will inevitably support the use of public transport;
- The development will include supporting social infrastructure (schools), as well as some retail or commercial activities;
- The layout of the development must respond to the future road planning for the area, to facilitate and maximise pedestrianisation and public transport.
- Commercial erven can accommodate a shopping centre, to service the existing formalised and informal settlements in the area. The commercial node will:
  - Promote entrepreneurial services and products;
  - Be within walking distance to places of refreshment and trade for residents;
  - Provide Job opportunities; and
  - Improve neighbourhood quality.

### **Single land use: Housing only (Alternative 2)**

By providing only one land use type (i.e., housing), mixed income development and social integration across race and income levels, cannot be achieved.

A Commercial node on site is commonly utilised as a “Multi-Purpose Community Centre/Rural Service Centre” which is defined as “a focal point at which a range of essential services can be obtained by people living in its vicinity”. In turn, a commercial node acts as a pool of human and physical resources from which the inputs necessary for development can be distributed efficiently, and from which a community can draw to promote their development”.

By restricting a township to one land use only, the above benefits to the local community, and subsequent council area, cannot be realised, and hence, is not a preferred land use option.

### **No-go Alternative**

The only other alternative that exists for the proposed development is the “no-go” option which will imply that the status quo will prevail. This is unacceptable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty. Linking basic services such as water to health is viewed as a false separation as these services are ‘intimately related to housing’. It becomes a housing issue if children playing outside the house contract diarrhoea via ingesting pathogens from faecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

## **2.4. Description of the Authorization process followed**

The purpose of this document is to adhere to the requirements for compilation of Environmental Impact Assessment Reports as amended and published in Government Notice R. 326 of 7 April 2017, Appendix 2, and the National Environmental Management Act (Act 107 of 1998) (NEMA).

In order to assess a proposed development it is important to take into consideration the principles of NEMA. These principles are outlined in Chapter 1 and read as follows:

- 1) *"The principles set out in this section apply throughout the Republic to the actions of all organs of state that may significantly affect the environment and—*
  - a. *shall apply alongside all other appropriate and relevant considerations, including the State's responsibility to respect, protect, promote and fulfil the social and economic rights in Chapter 2 of the Constitution and in particular the basic needs of categories of persons disadvantaged by unfair discrimination;*
  - b. *serve as the general framework within which environmental management and implementation plans must be formulated;*
  - c. *serve as guidelines by reference to which any organ of state must exercise any function when taking any decision in terms of this Act or any statutory provision concerning the protection of the environment;*
  - d. *serve as principles by reference to which a conciliator appointed under this Act must make recommendations; and*
  - e. *guide the interpretation administration and implementation of this Act, and any other law concerned with the protection or management of the environment.*
- 2) *Environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably.*
- 3) *Development must be socially, environmentally and economically sustainable.*
- 4) (a) *Sustainable development requires the consideration of all relevant factors including the following:*
  - (i) *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
  - (ii) *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
  - (iii) *that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
  - (iv) *that waste is avoided. or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
  - (v) *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
  - (vi) *that the development use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
  - (vii) *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*
  - (viii) *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*
- (b) *Environmental management must be integrated, acknowledging that all elements of the environment are linked and interrelated, and it must take into account the effects of decisions on all aspects of the environment and all people in the environment by pursuing the selection of the best practicable environmental option.*
- (c) *Environmental justice must be pursued so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons.*
- (d) *Equitable access to environmental resources, benefits and services to meet basic human needs and ensure human well-being must be pursued and special measures may be taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination.*
- (e) *Responsibility for the environmental health and safety consequences of a policy, programme, project, product, process, service or activity exists throughout its life cycle.*
- (f) *The participation of all interested and affected parties in environmental governance must be promoted, and all people must have the opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation and participation by vulnerable and disadvantaged persons must be ensured.*



- (g) *Decisions must take into account the interests, needs and values of all interested and affected parties, and this includes recognizing all forms of knowledge, including traditional and ordinary knowledge.*
- (h) *Community wellbeing and empowerment must be promoted through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.*
- (i) *The social, economic and environmental impacts of activities, including disadvantages and benefits must be considered, assessed and evaluated and decisions must be appropriate in the light of such consideration and assessment.*
- (j) *The right of workers to refuse work that is harmful to human health or the environment and to be informed of dangers must be respected and protected.*
- (k) *Decisions must be taken in an open and transparent manner, and access to information must be provided in accordance with the law.*
- (l) *There must be intergovernmental co-ordination and harmonisation of policies, legislation and actions relating to the environment.*
- (m) *Actual or potential conflicts of interest between organs of state should be resolved through conflict resolution procedures.*
- (n) *Global and international responsibilities relating to the environment must be discharged in the national interest.*
- (o) *The environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people's common heritage.*
- (p) *The costs of remedying pollution, environmental degradation consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment.*
- (q) *The vital role of women and youth in environmental management and development must be recognised and their full participation therein must be promoted.*
- (r) *Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure."*

The above mentioned principals and the applicable legislation, Policies and Guidelines as described in Paragraph 4 of this Report were taken into account in the assessment of the Environmental Impacts for the proposed development. The process followed can be described as follows:

- 1) AB Enviro Consult was appointed by the Ga-Segonyana Local Municipality to apply for Authorization for the "Proposed" Establishment of a Township on the site.
- 2) A site inspection held on 22 May 2018 revealed the following:



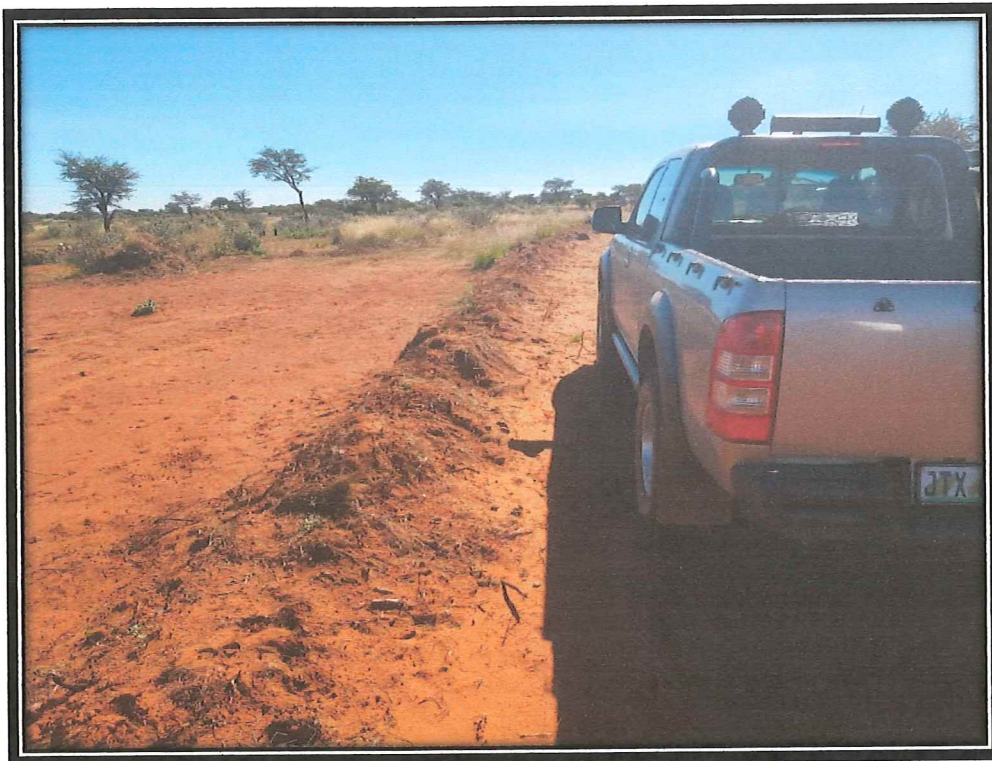
*Photograph 1 -4 are examples of graded roads found on site.*



**Photograph 1**



**Photograph 2**



**Photograph 3**



**Photograph 4**



*Photograph 5 and 6 illustrates water infrastructure that has been installed.*



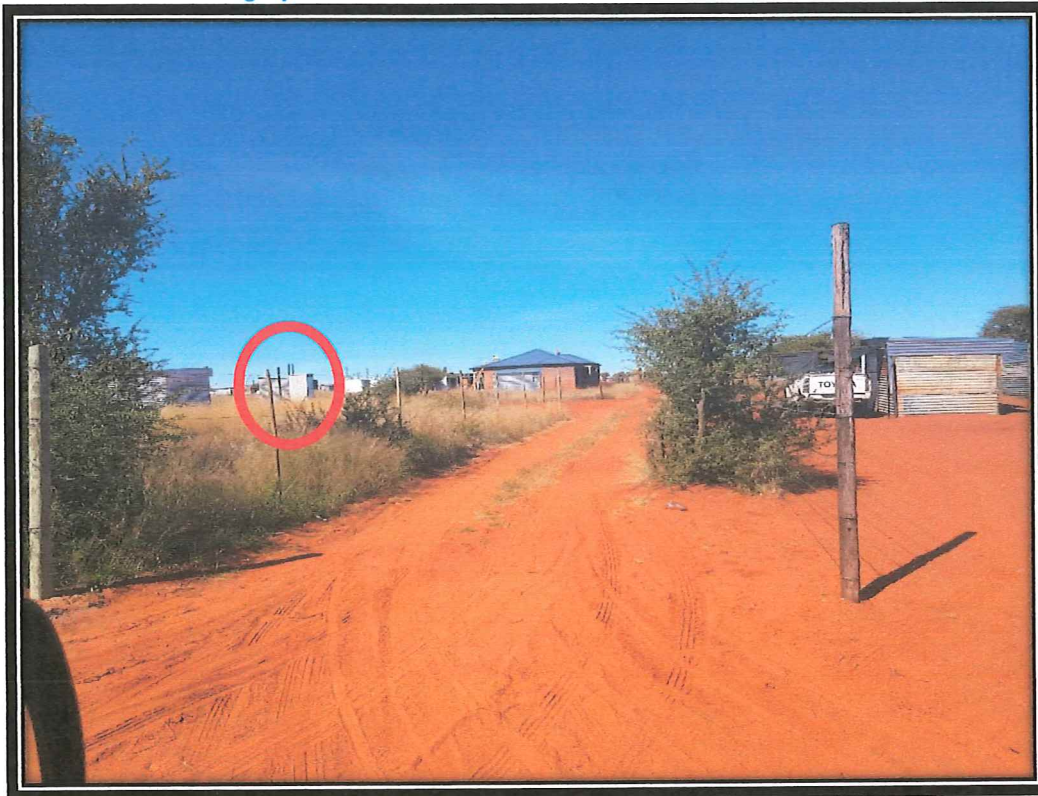
**Photograph 5**



**Photograph 6**



*Photograph 7 illustrates a VIP toilet that has been installed*



**Photograph 7**

*Photograph 8 and 9 illustrates some of the permanent structures found on site*





Photograph 8



Photograph 9

- 3) The EAP then arranged a meeting with Ms. Tshepiso Lekwene from the DENC and she confirmed that the process that will have to be followed will be **to apply for the rectification of unlawful commencement or continuation of a listed activity in terms of Section 24G of the National Environmental Management Act, 1998 ( Act No. 107 of 1998) as amended.**
- 4) The Applicant was not aware that he required Environmental Authorization before starting with provision of essential services in the area.
- 5) An Environmental Screening Process was conducted by the EAP to ensure that all the relevant Environmental Legislation is taken into consideration.
- 6) Desk top studies were conducted and alternatives assessed.
- 7) Site inspections were carried out to verify the outcomes of the desktop studies, and the preferred alternative defined.
- 8) A Botanical Specialist was appointed to conduct a Botanical survey of the area. This included a vegetation and habitat study to determine possible fatal flaws and to identify sensitive / no-go areas.
- 9) A Town and Regional Planner designed the proposed development in such a way that the layout of the proposed development, takes into account the measures described by the Civil Engineer and that the layout satisfies the needs of future occupiers of the site.
- 10) A Geotechnical Engineer was appointed to determine whether the Geology and Soils of the site is suitable for the proposed development
- 11) The Civil Engineer was appointed to determine the capability of existing infrastructure to be linked to proposed development and readily available bulk services. He also designed the proposed infrastructure.

- 12) A SAHRA Specialist has been appointed to determine the possible impact of the development on Archaeological and Cultural features.
- 13) A full Public Participation Process was followed to obtain inputs from interested and affected parties.
- 14) All the information obtained from the above mentioned processes was used to assess the Environmental Impact that the proposed development may have on the Environment and vice versa.
- 15) The inputs from the Specialists, interested and affected parties, together with the knowledge of the EAP was used to determine measures to avoid, mitigate and manage potential impacts. These measures are described in the Environmental Management Programme.

### **3. NEED AND DESIRABILITY OF THE DEVELOPMENT**

Informal settlement has already taken place on site, as such the need for housing in the area is highlighted. As in the rest of South Africa, there is a housing shortage in the area. This is undesirable as Informal settlements consist of non-conventional housing built without complying with legal building procedures. Broadly, these crude dwellings mostly lack proper indoor infrastructure, such as water supply, sanitation, drainage, waste disposal and proper road access. There is also a bond between poor housing and environmental conditions in informal settlements which also reflects poverty.

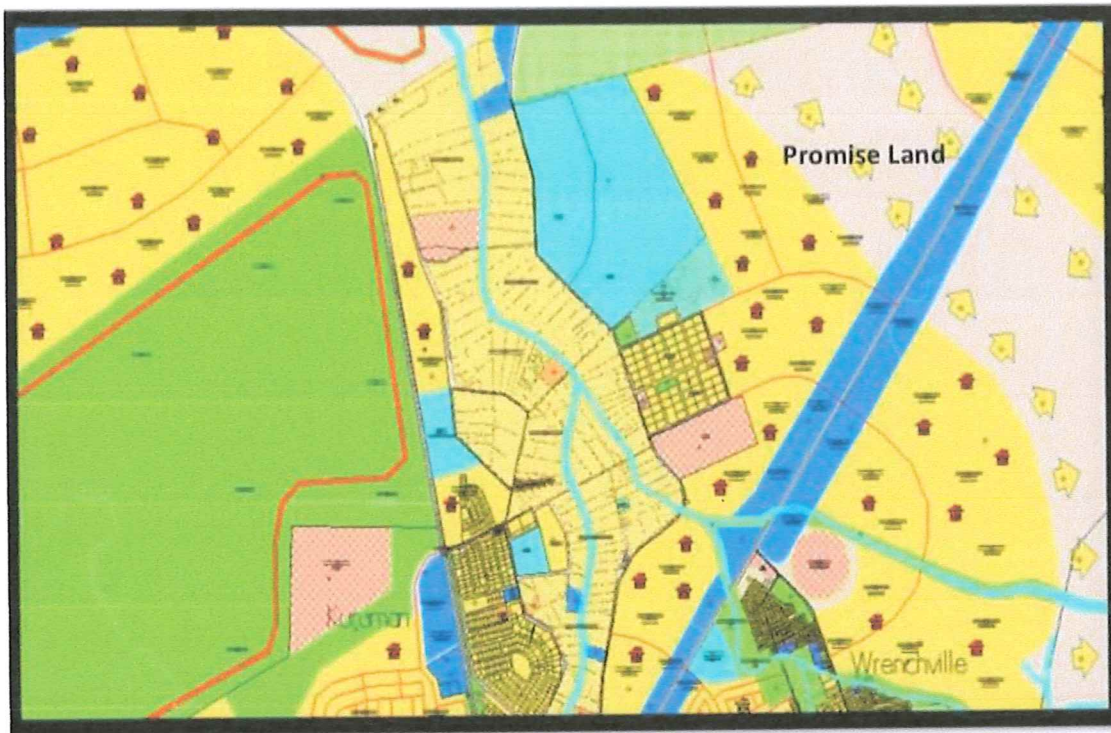
Linking basic services such as water to health is viewed as a false separation as these services are 'intimately related to housing'. It becomes a housing issue if children playing outside the house contract diarrhea via ingesting pathogens from fecal matter which contaminates the land on which they play. Otherwise, it is the house which provides for shelter against injury, weather and disease. Improving the surroundings of the house is to limit severe health risks existing within poor quality housing.

The proposed development is to formalize a township and to provide the services associated with a town to people in the area. It was envisioned to develop the proposed town as early as 2015, however, detailed site surveys had to be conducted as the area is known for dolomitic instability. These have now been completed and formalization of the town is highly desirable as it will eliminate the negatives associated with informal housing as described above.

According to the Ga-Segonyana SDF, the area where the Promised Land Informal Settlement is situated has been earmarked as a zone of integration that includes future residential development as well as the D3456 Street Corridor for business and mixed land use development



## Ga-segonyana SDF



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### **Housing Needs**

According to the housing needs register provided by COGHSTA, the total housing need for Ga-Segonyana Local Municipality was estimated at 2 246 units. This information is outdated as the land use survey indicated 2 763 informal structures in Promised Land only.

According to the 2016 Social Facilitation report, the monthly household income levels of Promised land was determined as follows:

Income Level	% distribution
None	18%
R1 - R500	9%
R 501 - R 1 500	20%
R 1 501 - R 3 500	26%
R 3 501 - R 7 500	17%
R 7 500+	10%
<b>Total</b>	<b>100%</b>
<b>Average total monthly household income</b>	<b>R 2 796</b>

73% of all households earn below R 3 500 per month with an average of R 2 796 per month. According to the income levels it is clear that the most of the households (73%) are dependent on government subsidies for housing. Based on abovementioned the following table provides a broad guideline of the possible housing typologies and mix that can be provided for the settlement in future.

Housing Types	Percentage	Income Category
Subsidised housing	73%	R0 - R 3 500
FLISP / GAP (Affordable) housing	17%	R 3 501 - R 7500
Affordable / Bonded housing	10%	R 7 501 +

▣ Subsidised housing can include houses or low cost rental units (CRU)

As far as housing needs are concerned a more detailed market assessment will be needed prior to the implementation of housing projects. Inputs from the community will be crucial for the provision of social facilities.

### **Social Facilities**

The following needs analysis is based on the estimated population of 8567 people as the threshold. According to the CSIR Guidelines for the provision of social facilities the needs for social facilities were determined as follows:



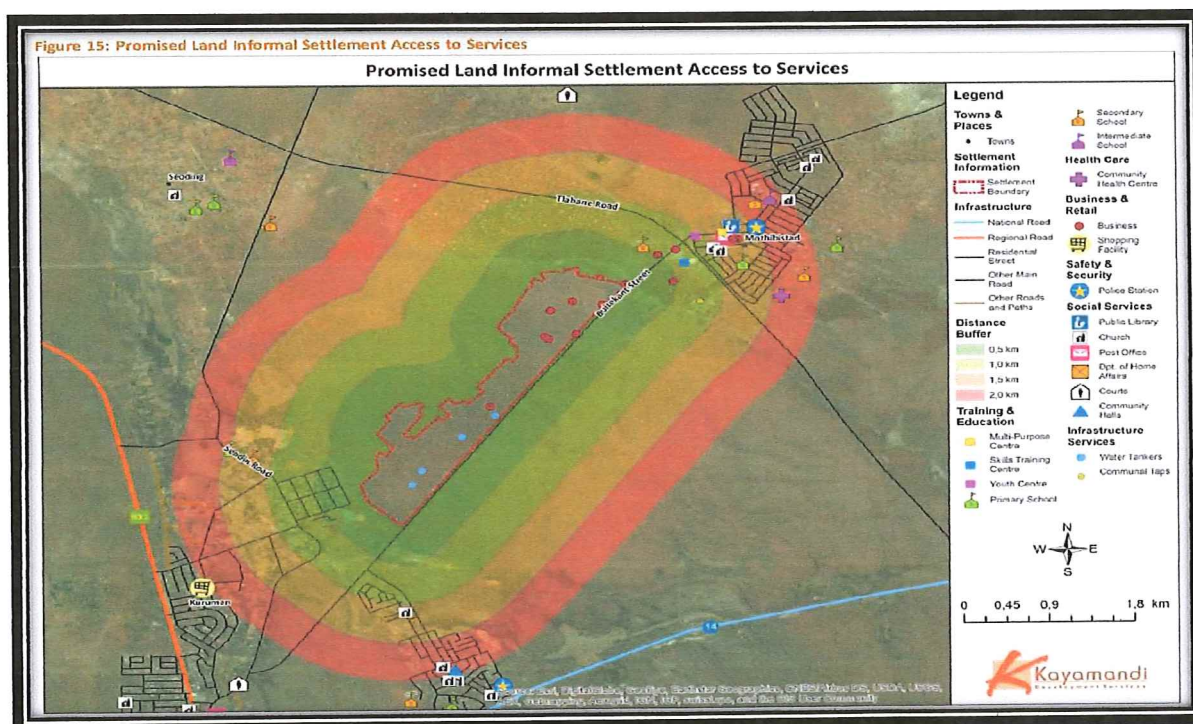
Land Use	Norms	Needs
Primary School	1 per 7000 people	1
Secondary School	1 per 12 500 people	-
Crèche	1 per 2400-3000 people	3
Multi Purpose Facility	Community Hall 1 per 15 000 people	1
	SASSA Pay Point (Variable population threshold)	1
	Primary Health Clinic 5000 – 7000 people	1 small clinic
	Post Office 10 000 – 20 000 people	1
Cemetery	4,4 ha per 25 000 inhabitants	1,5 ha
Parks	Neighbourhood – small (1 per 3000 inhabitants ) 0,4 ha / 100 inhabitants	3,4 ha

Church – Depending on the number of denominations

According to the 2016 Social Facilitation Report, the community indicated a need for the following social amenities:

- Clinic facilities
- Community Hall (first priority)
- Churches
- Public Transport Facilities

Existing social amenities in the neighbouring urban areas of Promised Land Informal Settlement is indicated on the following map (Social Facilitation Report, 2016).





The proposed development will:

- Provide services associated with the formalization of a town to future occupiers as well as the residents of the neighboring areas.
- During the construction phase of the proposed development, employment opportunities will be created and thus decrease the unemployment rate of the area.
- During the operational phase of the proposed development, additional employment opportunities will be created.
- The tax base of the Ga-Segonyana Local Municipality will be broadened

#### 4. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the application as contemplated in the EIA regulations, if applicable:

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
<p><b>National Environmental Management Act No. 107 of 1998 as amended.</b></p>	<p>NEMA is South Africa's overall environmental legislation and has, as its primary objective to provide for co-operative governance by establishing principles for decision making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state and to provide for matters connected therewith (Government Gazette, 1998).</p> <p>The Act provides for the right to an environment that is not harmful to the health and well-being of South African citizens; the equitable distribution of natural resources, sustainable development, environmental protection and the formulation of environmental management frameworks (Government Gazette, 1998).</p> <p>Section 30 (1, 3 and 4) of NEMA states that:</p> <p>(1)(a) "incident" means an unexpected sudden occurrence, including a major emission, fire or explosion leading to serious danger to the public or potentially serious pollution of or detriment to the environment, whether immediate or delayed. (b) "responsible person" includes any person who; (i) Is responsible for the incident; (ii) Owns any hazardous substance involved in the incident; or (iii) Was in control of any hazardous substance involved in the incident at the time of the incident;</p>	<p>National &amp; Provincial</p>	<p>27 November 1998</p>

	<p>(3) The responsible person or, where the incident occurred in the course of that person's employment, his or her employer must forthwith after knowledge of the incident, report through the most effective means reasonably available (a) the nature of the incident; (b) any risks posed by the incident to public health, safety and property; (c) the toxicity of substances or by-products released by the incident; and (d) any steps that should be taken in order to avoid or minimise the effects of the incident on public health and the environment to; (i) the Director-General; (ii) the South African Police Services and the relevant fire prevention service; (iii) the relevant provincial head of department or municipality; and (iv) all persons whose health may be affected by the incident.</p> <p>(4)The responsible person or, where the incident occurred in the course of that person's employment, his or her employer, must, as soon as reasonably practicable after knowledge of the incident; (a) take all reasonable measures to contain and minimise the effects of the incident, including its effects on the environment and any risks posed by the incident to the health, safety and property of persons; (b) undertake clean-up procedures; (c) remedy the effects of the incident; (d) assess the immediate and long-term effects of the incident on the environment and public health.</p>		
<p><b><i>The Bill of Rights, Constitution of South Africa, Section 27 (1)(b)</i></b></p>	<p>The Constitution of the Republic of South Africa is the legal source of all law, including environmental law, in South Africa. The Bill of Rights is fundamental to the Constitution of South Africa and in, section 24 of the Act, it is stated that:</p> <p>Everyone has the right (a) to an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that (i) prevent pollution and ecological degradation; (ii) promote conservation; and (iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.</p>	<p>National Government</p>	<p>1994</p>



	<p>Given that environmental management is founded partly on the principles of public participation, Section 195 of the Constitution is of primary relevance:</p> <p>(1) Public administration must be governed by the democratic values and principles enshrined in the constitution, including the following principles: (a) (b) (c) (d) (e) Peoples needs must be responded to, and the public must be encouraged to participate in policymaking. (f) Public administration must be accountable. (g) Transparency must be fostered by providing the public with timely, accessible and accurate information (Government Gazette, 1996).</p>		
<b><i>New Regulations 2014 in terms of NEMA</i></b>	<p>Legislation consulted during the environmental impact assessment process to determine whether any listed activities would be triggered. The Regulations were also consulted to determine inter alia the requirements regarding the contents of basic assessment reports and environmental management programmes and the public participation process that should be followed.</p>	National & Provincial	Amended 7 <sup>th</sup> of April 2017 Regulation following on from the 4 <sup>th</sup> December 2014 regulations
<b><i>National Water Act (36 OF 1998)</i></b>	<p>National Water Act (NWA), 1998 (Act 36 of 1998) is the primary statute providing the legal basis for water management in South Africa and has to ensure ecological integrity, economic growth and social equity when managing and using water.</p> <p>The major objectives of the National Water Act are to:</p> <ul style="list-style-type: none"> <li>•Aid in providing basic human needs;</li> <li>•Meet the growing demand of water in a sustainable manner;</li> <li>•Ensure equal access to water and use of water resources;</li> <li>•Protect the quality of water of natural resources;</li> <li>•Ensure integrated management of water resources;</li> <li>•Foster social and economic development; and</li> <li>•Conserve aquatic and related ecosystems.</li> </ul> <p>Section 19 of the National Water Act states that the person responsible for land upon which any activity is or was performed which causes, has caused or is likely to cause, pollution of a water resource, must take all reasonable</p>	Department of water and sanitation	1998

	<p>measures to prevent any such pollution from occurring, continuing or recurring.</p> <p>Chapter 3 of the National Water Act (36 of 1998), deals with pollution of water resources following an emergency incident, such as an accident involving the spilling of a harmful substance that finds or may find its way into a water resource. In terms of Section 30 of NEMA and Section 20 of the National Water Act, the responsibility for remedying the situation rests with the person responsible for the incident or the substance involved. If there is a failure to act, the relevant Catchment Management Agency may take the necessary steps and recover the costs from every responsible person.</p>		
<p><b>National Environmental Management: Biodiversity Act (NEMBA) (ACT NO. 10 OF 2004)</b></p>	<p>The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004), provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources; the fair and equitable sharing of benefits arising from bio-prospecting involving indigenous biological resources; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.</p> <p>In terms of Chapter 4 of the Above Act:</p> <p>52. (1) (a) The Minister may, by notice in the Gazette, publish a national list of ecosystems that are threatened and in need of protection.</p> <p>(b) An MEC for environmental affairs in a province may, by notice in the Gazette, publish a provincial list of ecosystems in the province that are threatened and in need of protection.</p> <p>(2) The following categories of ecosystems may be listed in terms of subsection:</p> <p>(a) critically endangered ecosystems, being ecosystems that have undergone severe degradation of ecological structure, function or composition as a result of human intervention and are subject to an extremely high risk of irreversible transformation;</p>	<p>National &amp; Provincial</p>	<p>2004</p>



	<p>(b) endangered ecosystems, being ecosystems that have undergone degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems;</p> <p>(c) vulnerable ecosystems, being ecosystems that have a high risk of undergoing significant degradation of ecological structure, function or composition as a result of human intervention, although they are not critically endangered ecosystems or endangered ecosystems; and</p> <p>(d) protected ecosystems, being ecosystems that are of high conservation value or of high national or provincial importance, although they are not listed in terms of paragraphs (a), (b) or (c).</p> <p>(3) A list referred to in subsection (1) must describe in sufficient detail the location of each ecosystem on the list. 53 (1) The Minister may, by notice in the Gazette, identify any process or activity in a listed ecosystem as a threatening process.</p> <p>(2) A threatening process, identified in terms of subsection (1) must be regarded as a specified activity contemplated in section 24(2)(b) of the National Environmental Management Act (1998) and a listed ecosystem must be regarded as an area identified for the purpose of that section.</p>		
<p><b>National Environmental Management: Protected Areas Act (ACT NO. 57 OF 2003)</b></p>	<p>This Act aims to provide for a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. The Protected Areas Act tries to ensure the protection of the entire range of biodiversity, referring to natural landscapes and seascapes. The Act makes express reference to the need to move towards Community Based natural Resource Management (CBNRM) as its objectives include promoting the participation of local communities in the management of protected areas. The purpose of the Act is:</p> <ul style="list-style-type: none"> <li>•To protect ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes and their ecological integrity.</li> </ul>	<p>National &amp; Provincial</p>	<p>2003</p>

	<ul style="list-style-type: none"> <li>•To conserve biodiversity in those areas;</li> <li>•To protect South Africa's rare species;</li> <li>•To protect vulnerable or ecologically sensitive areas;</li> <li>•To assist in ensuring the sustained supply of environmental goods and services;</li> <li>•To provide for the sustainable use of natural and biological resources;</li> <li>•To create or augment destinations for nature-based tourism;</li> <li>•To manage the interrelationship between natural environmental biodiversity, human settlement and economic development;</li> <li>•To contribute to human, social, cultural, spiritual and economic development;</li> <li>•To rehabilitate and restore degraded ecosystems and promote the recovery of endangered and vulnerable species.</li> </ul> <p>This Act further stipulates various criteria which must be met before an area can be declared as a special nature reserve, national park, nature reserve and protected environment. It also prescribes a range of procedures, including consultation and public participation procedures which must be followed before any of the kinds of protected areas are declared.</p>		
<p><b>Mineral and Petroleum Resources Development Act (MPRDA), Act 28 of 2002</b></p>	<p>The Act distinguishes between mining permits and mining rights as follows:</p> <p><b>Mining Permit:</b> Required where the activity will last less than two years and affects an area of less than 1.5ha in extent (valid for 3 years). In terms of the Act a mining permit requires a submission of an Environmental Management Plan (EMP to DME for approval prior to the onset of activities).</p> <p><b>Mining Right:</b> Required for larger mining operations (renewable and valid for 30 years). In terms of the Act a mining right requires the submission of an Environmental Management Programme (EMProg) to DME for approval prior to the onset of activities.</p> <p>In light of their limited spatio-temporal extent, borrow pits (for the provision of construction material) and quarry operations would typically require a mining permit.</p> <p>The closure of borrow pits requires the submission of a closure application; this must be submitted within 180 days after</p>	<p>Relevant Provincial Authorities.</p>	<p>2002</p>



	ceasing operations. It is important to recognise that the mining right/permit holder's liability persists until such time as a Closure Certificate has been issued by DME.		
<b>National Heritage Resources Act, Act No. 25 of 1999</b>	Legislation consulted during the impact assessment process, to determine the legal requirements relating to the management of heritage resources that are present in and around the site.	SAHRA	1999
<b>National Environmental Management: Waste Act, Act No. 59 of 2008, read together with the List of Waste Activities that Have, or are Likely to Have, a Detrimental Effect on the Environment, GN No. 921 of 29 November 2013</b>	Legislation consulted to determine whether a waste licence will have to be obtained for the development.	National & Provincial	2008
<b>National Environmental Management: Air Quality Act (Act 39 of 2004)</b>	To protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social Development. Construction activities may cause some air pollution.	Relevant Provincial Authorities.	2004
<b>The Conservation of Agricultural Resources Act (Act 43 of 1983)</b>	This Act regulates the flow pattern of runoff water, control of weeds and invader plants.	Relevant Provincial Authorities.	1983
<b>National Veldt and Forest Fire Act (Act 101 of 1998)</b>	Chapter 4 places a duty on owners to prepare and maintain firebreaks.	Relevant Provincial Authorities.	1998
<b>National Forests Act, Act 84 of 1998 (NFA) read with GN 536 of 7 September 2018.</b>	During the construction phase of the development certain protected trees may be affected. Licences will have to be obtained from the Minister before the affected trees may be cut, disturbed, damaged or destroyed. GN 536 of 7 September 2018 contains the list of protected trees.	National and Provincial authorities.	1998
<b>Northern Cape Nature Conservation Act, 2009 (Act. No. 9 of 2009)</b>	This Act contains schedules of protected and specially protected species (fauna and flora) that may not be disturbed without a valid fauna and flora Permit from Nature Conservation.	Northern Cape Provincial Authority.	2009
<b>Occupational Health and Safety Act (Act 85 of 1993)</b>	To provide for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery and the protection of persons other than persons at work against hazards to health.	Relevant Provincial Authorities.	1993
<b>National Heritage RESOURCES Act (Act 25 of 1999)</b>	<b>Regulation 38.</b> (1) states that any person who intends to undertake a development categorised as—(a) the	Relevant Provincial Authorities.	1999

	construction of a canal exceeding 300m in length; must get authorization from SAHRA		
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## **ADDITIONAL NATIONAL LEGISLATION**

*Other National Legislation, which has implications for environmental control on the site, includes:*

- *Conservation of Agricultural Resources Act (43 of 1983), regulation of the flow pattern of runoff water, control of weeds and invader plants;*
- *National Environmental Management Waste Act (59 of 2008)*
- *The Guidelines contained in the Document of the Department of Environmental Affairs and Tourism (Department of Environmental Affairs and Tourism, 1998) , regarding the implementation of the regulations under sections 21, 22 and 26 of the above mentioned act*
- *The Guidelines contained in the Document on Integrated Environmental Management (Department of Environmental Affairs, 1992)*
- *The National Heritage Act (25/1999)*
- *Aide Memoir - Department of Water Affairs and Forestry (DWAf, 2003)*
- *Water Act (36/1998)*
- *Water Services Act (108/1997)*
- *Occupational Health and Safety Act, (1993/85)*
- *Mineral and Petroleum Resources Development Act (MPRDA) (Act No. 28 of 2002)*
- *The Mine Health and Safety Act (MHSA) (Act No. 29 of 1996)*
- *National Forest Act (84/1998)*
- *The following municipal policies and documents were consulted:*
  1. *Integrated Development Plans (IDP) 2009-2010*
  2. *Spatial Development Framework (SDF), 2005*
  3. *City Development Strategy, 2006*
  4. *Road Master Plan*
  5. *Water Master Plan, 2007*

## **SUSTAINABLE DEVELOPMENT**

*The principle of Sustainable Development has been established in the Constitution of the Republic of South Africa (108 of 1996) and given effect by NEMA. Section 1(29) of NEMA states that sustainable development means the integration of social, economic and environmental factors into the planning, implementation and decision-making process so as to ensure that development serves present and future generations.*

*Thus, Sustainable Development requires that:*

- *The disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*