

**PROPOSED NEW DEVELOPMENT:  
REZONING AND SUBDIVISION: PORTION 3 OF THE FARM  
KRAAIBOSCH 195**



Submitted by:  
**BDE Consulting Engineers**  
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Reference: GRG 262

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## TABLE OF CONTENTS

<b>TABLE OF CONTENTS</b> .....	<b>2</b>
<b>1. INTRODUCTION</b> .....	<b>3</b>
<b>2. EXISTING INFRASTRUCTURE</b> .....	<b>3</b>
<b>3. AVAILABLE CAPACITY</b> .....	<b>3</b>
<b>4. EXPECTED DEMAND</b> .....	<b>4</b>
<b>5. PROPOSED ELECTRICITY DISTRIBUTION NETWORK</b> .....	<b>4</b>
5.1. <u>POINT OF SUPPLY</u> .....	5
5.2. <u>CONSUMPTION METERING</u> .....	5
5.3. <u>MEDIUM VOLTAGE NETWORK</u> .....	5
5.4. <u>LOW VOLTAGE NETWORK</u> .....	6
5.5. <u>STREET LIGHTING</u> .....	6
<b>6. CONCLUSION</b> .....	<b>6</b>
6.1. <u>GENERAL</u> .....	6
6.2. <u>IMPACT ON EXISTING ELECTRICITY CUSTOMERS</u> .....	6
6.3. <u>IMPACT ON MUNICIPAL OPERATING COST</u> .....	6
6.4. <u>ENVIRONMENTAL IMPACT</u> .....	7
6.5. <u>ENERGY SAVING</u> .....	7

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## 1. INTRODUCTION

This electrical engineering services report covers the external bulk electricity supply as well as the internal electrical distribution network, to the proposed development on Portion 3 of the Farm 195, George, Western Cape.

The proposed development consists of the following electrical units:

- Single residential units;
- Standby Flats & Frail care unit;
- Business Zone 2;
- Reception, Administration, Dining-hall & Parking.

The rezoning and subdivision plan is attached as Annexure A.

## 2. EXISTING INFRASTRUCTURE

The development is within the licensed electricity distribution area of George Municipality.

The existing main infrastructure in the area consists of 11kV overhead line networks and underground cables.

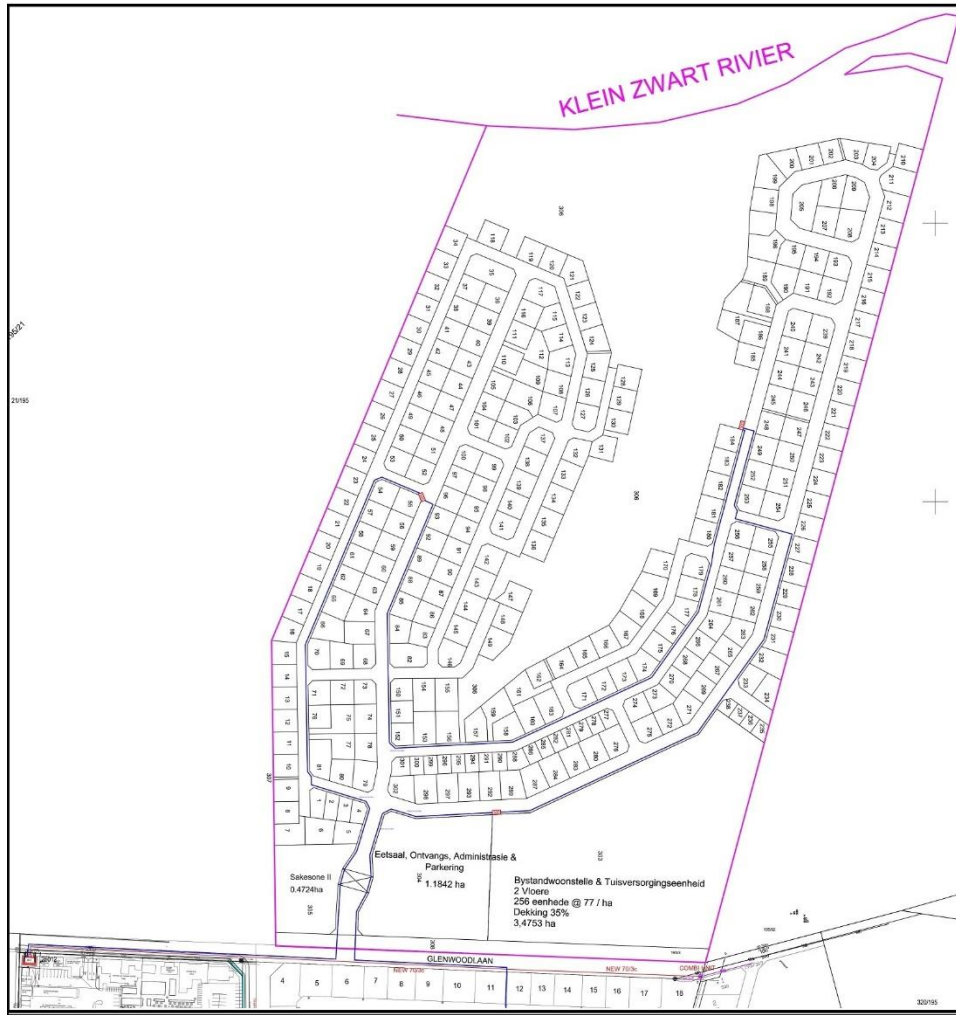
## 3. AVAILABLE CAPACITY

With the implementation of the electrical master plan for the area, adequate capacity will be available for the development.

Refer to Annexure B for the Municipal letter of confirmation.

The development will be supplied from the exiting 185mm<sup>2</sup> Aluminium 11kV cable between Glenwood 66/11 kV substation and the ring main unit that supply Kraaibosch Ridge (Erf 26012).

The cable route is indicated in blue below:



#### 4. EXPECTED DEMAND

The expected load at main substation level is summarised as follows:

Load at switching sub level			
Description	units	KVA/Unit	KVA
Residential Zone 1	301	3	903
Residential Zone 4	256	1.1	281
Business Zone 2	1	27	27
Parking & administration	1	50	50
Maximum expected load			1 261

#### 5. PROPOSED ELECTRICITY DISTRIBUTION NETWORK

The complete electrical distribution network shall comply with the Municipality's standard requirements, and technical specifications.

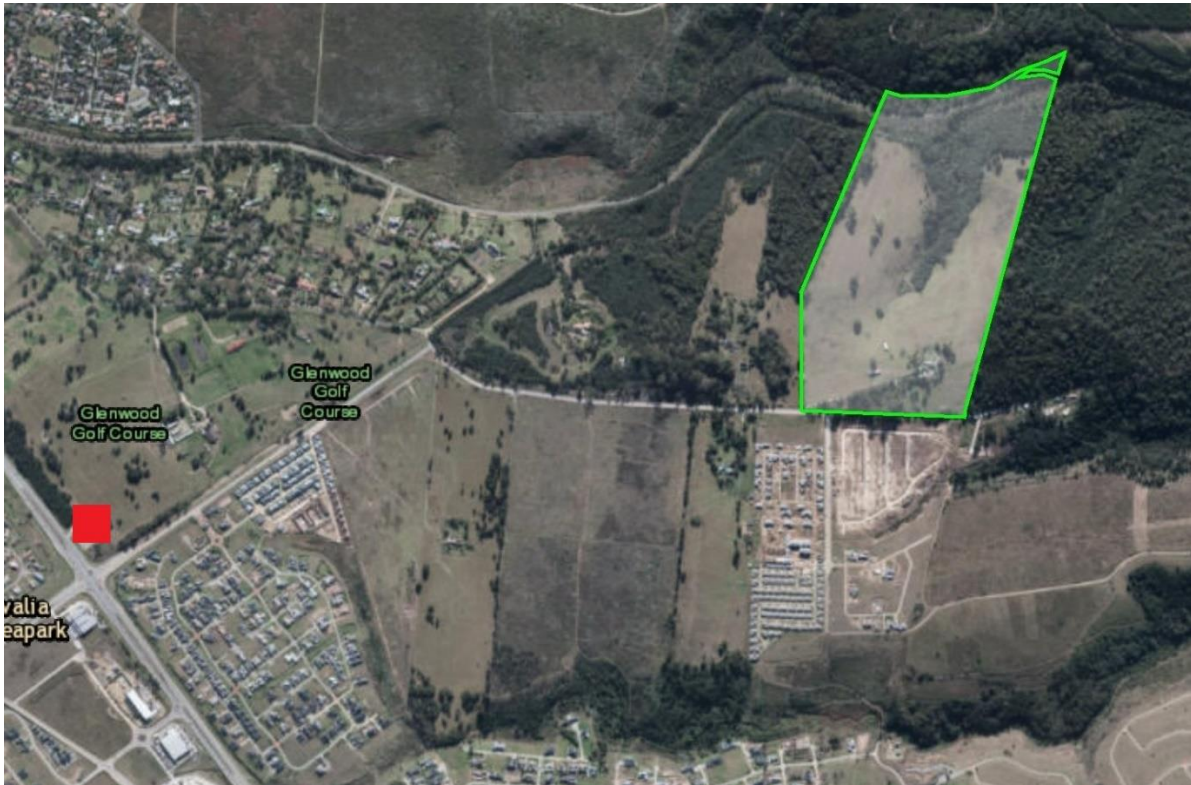
On completion, the electrical distribution network will be handed over to the Municipality, which will then be responsible for the network.

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Detail of the proposed electrical distribution network is summarised as follows:

5.1. Point of supply

The point of supply will be Glenwood 66/11 kV substation:



5.2. Consumption metering

Individual metering of the residential units will be done with the standard municipal prepayment metering system. The Business zone, Reception, Administration, Dining-hall, Parking, Standby Flats & Frail care unit etc. will be metered separately.

5.3. Medium voltage network

The development will be supplied from a main 11kV feeder cable between the existing Glenwood 66/11 kV substation and future Groenkloof substation.

Prior to the establishment of Groenkloof substation, the ring system through the development will be closed by connecting to the existing 11kV overhead power line which follows the main road adjacent to the proposed development.

The medium voltage network will consist of a 11kV ring cable system which supply mini substations.

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The mini substations will be strategically positioned within the development to optimise electrical distribution and to eliminate possible damage by vehicles.

#### 5.4. Low voltage network

The low voltage distribution system will be supplied from the mini substations via underground low voltage cables supplying strategically positioned distribution kiosks.

The supply cables to the distribution kiosks will be protected with optimally designed feeder circuit breakers housed inside the mini substation.

Single phase service connections to individual stands will be done with underground cable from the mentioned distribution kiosks ending 1 meter x 1 meter inside each stand and at a connection box on an external wall for existing buildings, where applicable.

#### 5.5. Street lighting

Public road streetlights shall meet Municipal requirements and will, after completion, be taken over by the Municipality for operation and maintenance.

The electricity consumption, maintenance and operation of streetlights inside gated communities and along private roads shall be the responsibility of the homeowner's association or body corporate. The Developer has the option to install custom streetlights. If this is done, the consumption, maintenance and operation of the streetlight network will stay the responsibility of the homeowner's association.

Luminaires will be of the low level, low glare type.

Mercury vapour, high pressure sodium, fluorescent or incandescent lights shall not be considered.

Energy efficient LED type luminaires will be utilised.

## 6. CONCLUSION

### 6.1. General

Adequate capacity exists at the point of supply to accommodate the development.

The development will be included into the proposed masterplan extension of the distribution network in the area.

### 6.2. Impact on existing electricity customers

The development will have a minimal effect on the quality of supply to the existing customers, since the development will be supplied by its own 11kV underground cable system.

### 6.3. Impact on Municipal operating cost

The development will have no negative effect on the electrical operating costs of the supply authority, since the complete electrical infrastructure required for the development will be supplied, installed and maintained by the developer. Electricity sales to the new customers will in fact contribute to the profits made by the supply authority.

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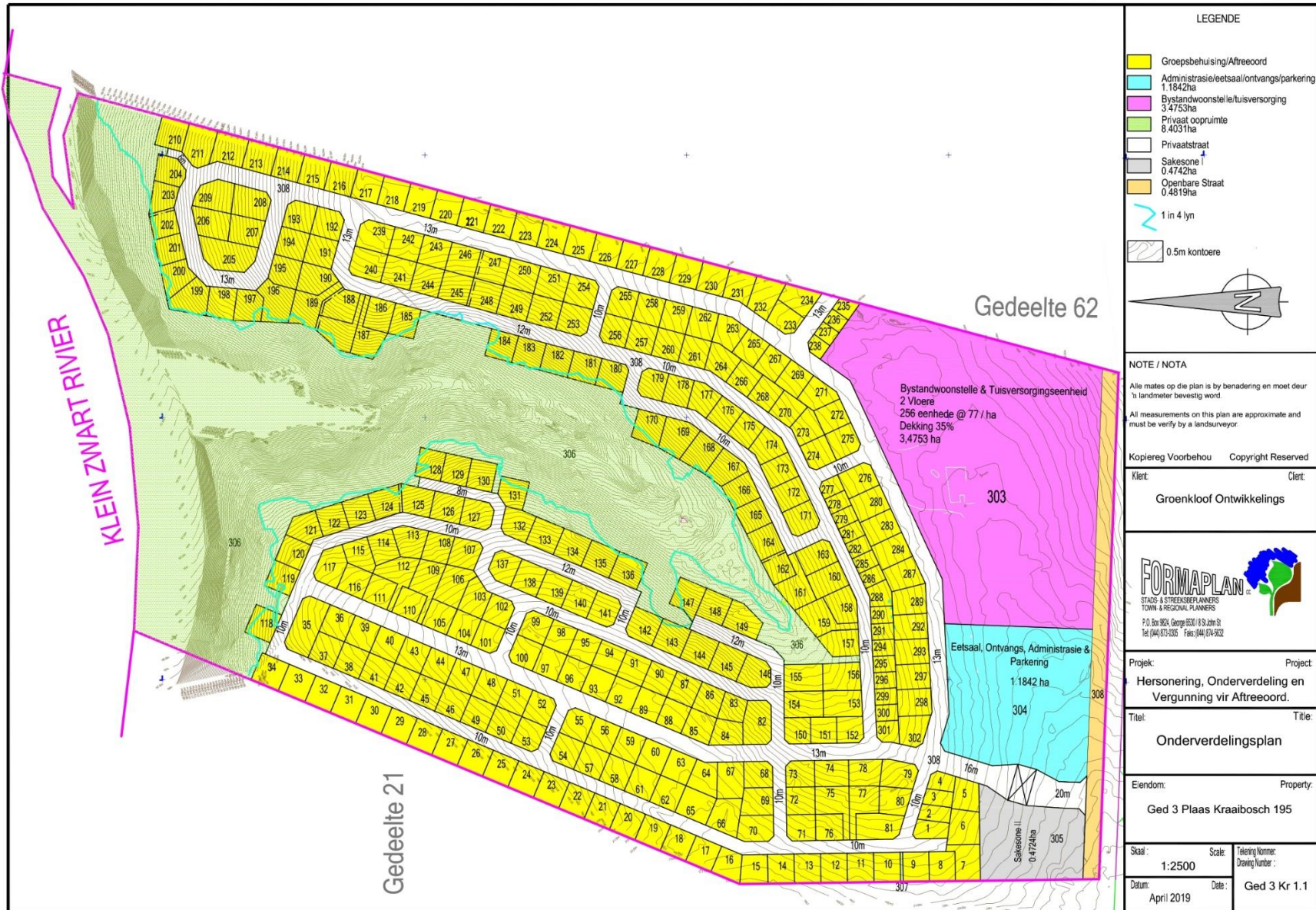
#### 6.4. Environmental impact

The entire internal electrical distribution network will be carefully designed to blend in with the development as well as the natural environment. All structures, equipment and switchgear will be low profile, following natural contours. The environmental management plan for the development will form an integral part of the specification and requirements for the electrical construction work.

#### 6.5. Energy saving

Energy savings will be optimised with an energy efficient design approach as well as the utilisation of alternative energy sources. Area and street lighting will be done with energy efficient LED technology.

On behalf of **BDE CONSULTING ENGINEERS**







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Date: 17 November 2019

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Attention: Mr Danie de Vries

Dear Sir

**PROPOSED REZONING AND SUBDIVISION: PORTION 3 OF 195 OF THE FARM KRAAIBOSCH, DIVISION GEORGE**

With reference to your request, the following refers.

The George Municipality Electrotechnical Services Department confirms that the proposed development is included in the electrical general growth and development plans for the Groenkloof/Kraaibosch area, supplied from Glenwood substation. This pertains to the supply for the proposed development indicated on drawing no. *Kraaib/3 1.1* received from Messrs BDE Consulting Engineers on 15 November 2019.

Specific standard development conditions will be enforced on submission of the legal land use application, and detailed in a service agreement between the George Municipality and the developer once final approval has been issued. All designs for the proposed electrical network will have to be submitted to the George Electrotechnical Services Department for approval.

We trust the above information to be sufficient. Please do not hesitate to contact us if any additional information is required.

Yours faithfully,

Steyn van der Merwe

**Planning Department, Electrotechnical Services, George Municipality**

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