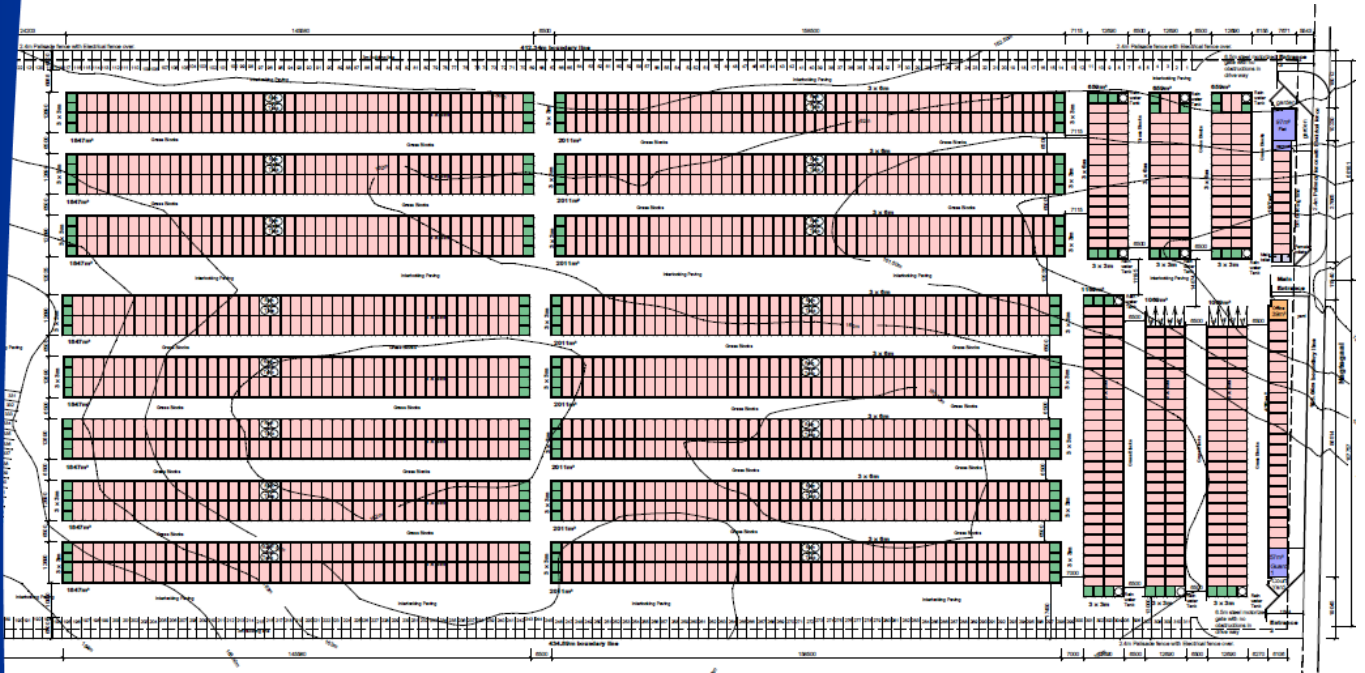


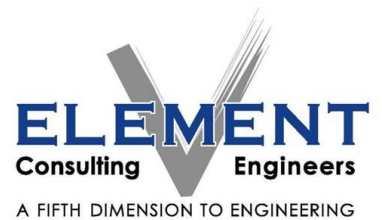
# Proposed Development of New Storage Facility on Stand 21275, Aalwyndal, Mossel Bay



## Electrical Report

(Revision 0)

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# **Proposed Development of New Storage Facility on Stand 21275, Aalwyndal, Mossel Bay**

## **Engineering Services Report**

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# 1 INTRODUCTION & BACKGROUND

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Element Consulting Engineers has been appointed by Storage Mossel Bay (Pty) Ltd for the rendering of the electrical consulting engineering services for the proposed further development of Erf 21275, Aalwyndal, Mossel Bay.

The extent of the property is 77 521 m<sup>2</sup>. The proposed development envisages the development of 1674 (6 x 3m) storage units, 158 (3 x 3m) storage units, 349 parking bays and subservient services, which include a guard house, flat and office building.

A number of meetings and site visits have been held by the project team to ascertain conditions on site. All engineering issues have been discussed with the relevant municipal officials, all of which will be presented in this preliminary engineering services report.

This report in summary will detail and discuss the preliminary electrical engineering services design of the proposed development.

This report will serve as input into the development application process.

## 2 LOCALITY AND ACCESS

Erf 21275, is located in Aalwyndal, Mossel Bay, approximately 3.2km west of the N2 freeway with the Mossel Bay Airfield on the western border. Current and proposed access is obtained from Nagtegaal Road on the eastern boundary of the site.

Figure 1 below indicates this locality and access in additional detail.



Figure 1: Locality and access

### 3 ENGINEERING SERVICES DESIGN

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This chapter will discuss the electrical engineering services at the hand of the proposed development parameters in terms of firstly the bulk engineering services and secondly the internal engineering designs in parallel with the engineering standards and technical design criteria applicable to the project.

#### 3.1 Electricity

##### 3.1.1 Bulk Availability and Connection Point

The property is currently serviced by an 11kV bulk municipal electrical overhead line along Nagtegaal Road, with a 50kVA pole-mounted transformer, that steps the voltage down to 400V and provides LV infrastructure to the different properties in the area. The LV is distributed to the different properties via a distribution kiosk. The figure below indicates this arrangement.



*Figure 2: Existing 50kVA Pole-mounted transformer & kiosk*

### 3.1.2 Design Criteria

The following design criteria has been discussed with the Client and used as input to the final load estimations:

- No plugs or lights to be provided in any of the storage units
- Small power and lighting required at the guard house
- Small power and lighting required at the office building
- Small power and lighting required at the flat
- Basic LED security lighting required on the site

### 3.1.3 Load Forecast

The following design criteria is used for calculation of After Diversification Maximum Demand (ADMD) for the development:

- Load criteria:
  - Office Building – 5.0 kVA / unit
  - Flat – 3.0kVA / unit
  - Guard house & Security Lighting – 5.0 kVA
- Diversity factor – 0.8

The diversified load of the development, in line with the above design criteria, is calculated to be 9.6 kVA (42A @ 230V).

### 3.1.4 Existing Connection

The property is currently being supplied from the LV Kiosk in Nagtegaal Road via a 16mm<sup>2</sup>, 3-core underground cable with a 63A, single phase supply and associated pre-paid meter to a small distribution board as per the image below.





Figure 3: Existing Electrical DB and Pre-paid Meter



## **4 CONCLUSIONS AND RECOMMENDATIONS**

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### **4.1 Conclusion**

Based on the load requirements and forecast calculations, it is estimated that the existing electrical supply will be sufficient to supply the future development. The final connection point will be re-located as part of the overall site development plan to a new central distribution board, from where the sub-buildings and area security lighting will be reticulated.

### **4.2 Recommendations**

With reference to the conclusions above, the following is recommended:

1. That all conceptual and preliminary design specifications and standards be accepted and approved.
2. That all detail designs be performed to the satisfaction of the local municipality, relevant provincial government departments and other authorities, in line with the proposals contained in the report.

**It is the holistic recommendation that the proposed development be approved from an electrical engineering design perspective.**