
Date: 10 April 2015**Your Ref:****Our Ref: TK1146****ERVEN 628 and 621 KNYSNA****CIVIL INFRASTRUCTURE SERVICES REPORT FOR PROPOSED NEW HOTEL****DEVELOPMENT****INTRODUCTION****1. Background**

This report provides information regarding the civil infrastructure required for the proposed new 50 hotel rooms to be developed on Stands 628 and 621 in Gordon Street, Knysna CBD.

Tuiniqua Consulting Engineers has been appointed to compile a services report for this project.

2. Purpose of services report

This report specifically addresses the provision of bulk service provision for the proposed development. The purpose of this report is to agree with and obtain approval from Knysna Municipality for the following:

- 2.1 Design criteria, standards and materials for the design of water supply, sewerage effluent, storm water drainage and access to and from the property.
- 2.2 Connection to existing bulk services and the demand on those services.
- 2.3 The application for the proposed rezoning .

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DEVELOPMENT DESCRIPTION

3. Development layout

This development comprises of two existing erven to be consolidated to one erf.

The development will consist of 50 hotel suites, and 383m² shops and offices.

It is proposed that erven 621 and 628 be rezoned from “Single Residential” to “Business Zone”.

4. Locality, size and access

The development is in Gordon Street, Knysna CBD and is situated within the jurisdiction of the Knysna Municipality. The property (refer to figure 1 for locality plan) consist of two residential stands that will be rezoned .



Figure 1

Total area of the consolidated erf will be 1881m² and is situated to the south of Gordon street between Hedge and Grey street

Access to the property can be gained from Gordon Street.

5. Geology and soils

A geotechnical site investigation was not yet done for these property but from geotechnical investigations on the adjacent stands the soil types are as follow:

- 0-600mm: Loose to medium siltyish fine sand, intact and transported.
- 600-1200mm: Medium Dense, siltyish fine sand, intact and transported.
- 1200-1500mm: Coarse siltyish sand and sea shells, intact and transported.

The water table was found at 1200mm below NGL.

DESIGN NORMS, MATERIALS AND STANDARDS

6. Design norms and standards

The design norms and standards for the provision of civil infrastructure to the development, to be adopted, are drawn from:

- “Guidelines for Human Settlement Planning and Design”, compiled under the patronage of the Department of Housing (Referred to as the Red Book) and references in this report refer to the Guidelines.

This development is categorized as middle to higher income development and services are designed accordingly.

SERVICES

7. Water reticulation

7.1 Existing services

An 110mm diam existing Municipal waterline is situated on the Northern side of Gordon Road.

7.2 Proposed services and connections

Fire.

This development will be considered as a moderate risk development, as the buildings will not be more than 3 storeys in height.

The following requirements will apply.

- Duration of design fire flow 4 h.
- Minimum design fire flow 6000 l / min.

- Maximum number of hydrants discharging simultaneously – all hydrants within 270m of the fire (minimum 4).
- Minimum hydrant flow rate 1500 l / min.
- Minimum residual head 15 m.
- The complete fire plan will be designed by a specialist to be appointed by the developer.

It is proposed that a booster fire valve system be installed on a network separate from the domestic network.

Domestic water:

The domestic water will be drawn from the main reticulation with one 80mm bulk water meter for the development.

The following requirements will apply:

- 150 liter / occupant or 300 liter per hotel room unit / day (50 units) (Table 9.14).
- 400l /day for Offices and shops (383m²)
- Total annual average water demand is $(300 \times 50 + 3.83 \times 400) = 16,53 \text{ m}^3 / \text{day}$
- If one “equivalent erf” (ee) has an annual average daily demand of 1000 liters then this development will have the demand of 16 “equivalent erven”
- Peak factor = 18.0 (Figure 9.11)
- Peak flow required 3.5 l/s.
- Average demands 16.5 m³ / day.

The water connection for this development will be drawn from a connection as provided and required by the municipality. It is proposed to connect to the existing 110mm diameter waterline in Main Road.

8. Sewer reticulation

8.1 Existing services

A 300mm existing sewer line runs along the southern side of Gordon street. The sewer line is to be upgraded to a 450mm sewer in future by the municipality.

8.2 Proposed services and connections

According to the “Guidelines for human settlement planning and design” 600 l / 100m² of erf size per day, should be allowed for. (Total erf size 1881m²)

- Average daily flow = 11.400m³ / day. (This represent 70% of the water average water demand)
- Peak flow factor = 3.5 X 1,15 = 4
- Design flow = 0.53 liter / sec
- This flow will only contribute to a max of 2,5% of the capacity of the existing 300mm municipal line if the existing 300mm line is at the minimum prescribed gradient of 1:500

It is proposed for the sewer to be connected to the existing municipal infrastructure in Gordon street.

Due to the depth of this line and the shallow water table dewatering will be required when the connection is made.

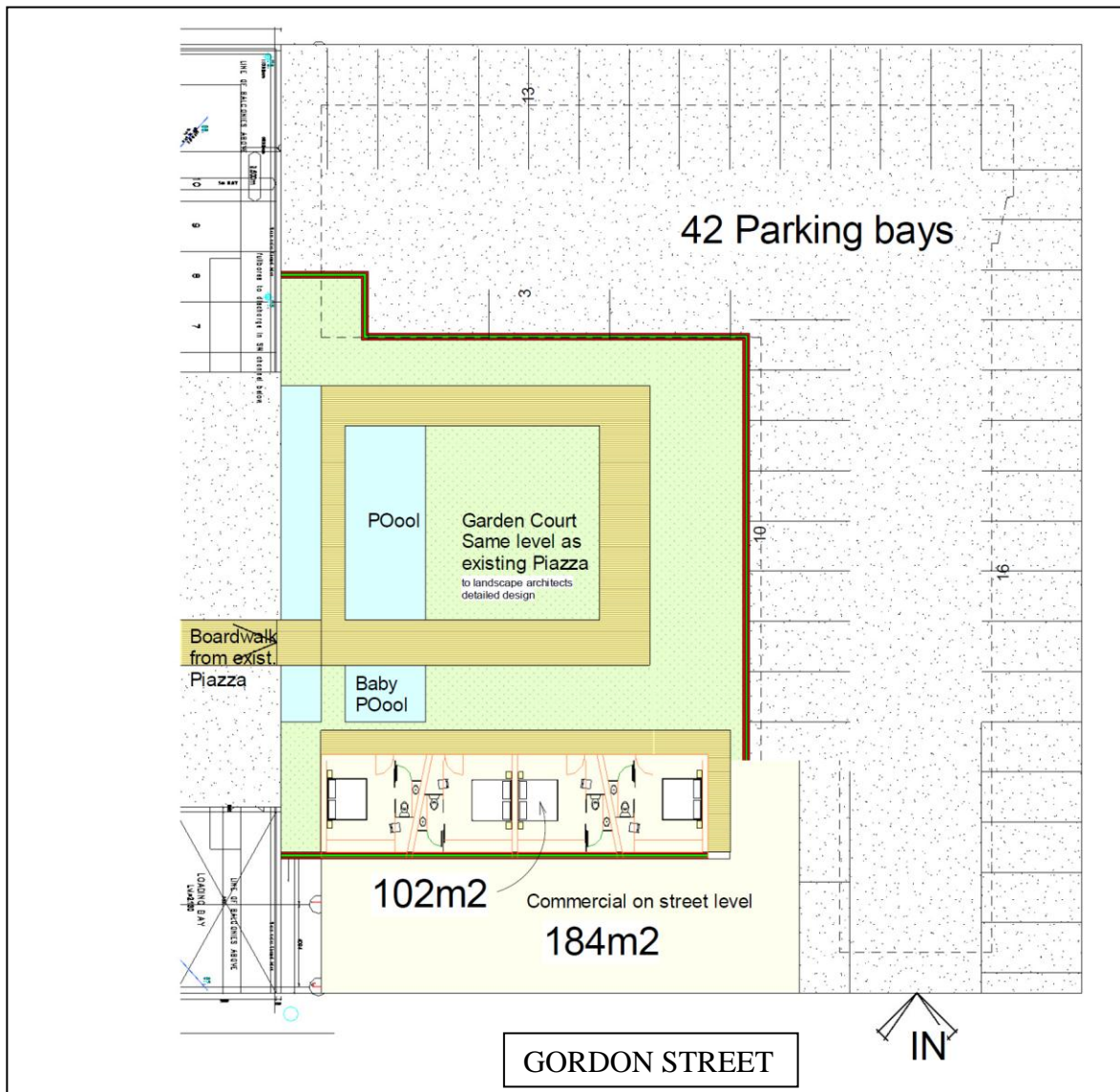
9. Roads

Access to the parking area will be obtained from:

- Gordon street (41 parking bays)

It is not recommended that a traffic impact study for this proposed development be done as the impact of the traffic will be minimal. The development is a hotel which will generate a maximum of 100 vehicles per day. It is however also our experience that the guests to a hotel of this size in Knysna usually arrives by bus which will minimize the impact even further.

The shops and offices will generate a maximum of 60 vehicles per day at a turnover rate of one vehicle per hour.



10. Storm water

The storm water runoff from the development will be discharged to the existing surface storm water channel on the southern side of Gordon street.

We trust that this report meets with your approval and will provide further information should it be required.

We recommend that this development be allowed as per the proposal.



Serett Maree
TUINQUA CONSULTING ENGINEERS