

ANNEXURE "E"

**MESSRS WSP CONSULTING
ENGINEERS**

ERVEN 862, 863, 865, 866, MAPLETON EXT.10

1 ENGINEERING INFRASTRUCTURE

The expected Engineering Services requirements for a housing development of approximately 300 units on erven 862, 863, 865 and 866 in Mapleton Ext. 10 are set out in the sections below. Ekurhuleni Metropolitan Municipality's GIS website was used to determine the services in the surrounding area.

1.1 DEMAND

The demand was estimated using the unit demand rates for a *Conventional Small or Medium Sized Erven (up to 1 000m²)* as well as for *Low Cost Housing* and is tabulated below.

	CONVENTIONAL ERVEN		LOW COST HOUSING	
	Demand / Erf	AADD	Demand / Erf	AADD
Water (kℓ)	0.8	240	0.7	210
Sewer (kℓ)	0.5	150	0.6	180

1.2 WATER RETICULATION

The neighbouring developments are supplied by Rondebult Crossing Reservoir in Germiston, the spare capacity of the reservoir is currently unknown.

1.3 SEWER RETICULATION

The neighbouring developments are draining to ERWAT's (East Rand Water Care Company) Waterfall Waste Water Care Works in Klip River. The peak capacity of the plant is 155 Mℓ/day and the spare capacity of the plant is currently unknown.

1.4 STORM WATER MANAGEMENT

The natural ground surface of the site appears uneven without a definite drainage direction. It is recommended that the storm water be attenuated for a 1 in 25 year storm event and released into the municipal network (if available) at a rate of the current 1 in 5 year storm event as required for a storm water management plan. Should there not be an adequate municipal network to drain into, one should be implemented.

1.5 COMMENTS

Ekurhuleni Metropolitan Municipality (EMM) was contacted for comments on the capacity of the services in the area and they requested that a GLS Study be done (estimated cost R77 800).

2 ROAD NETWORK

The existing and planned road infrastructure in close proximity to erven 862, 863, 865 and 866 in Mapleton Ext. 1 will be discussed below. The information was obtained from the Ekurhuleni Route Codes Map (2006) as well as the Gautrans Strategic Road Network Plan F5.

2.1 EXISTING ROAD NETWORK

The existing roads in the vicinity of the site can be seen in the Figure 2.1.

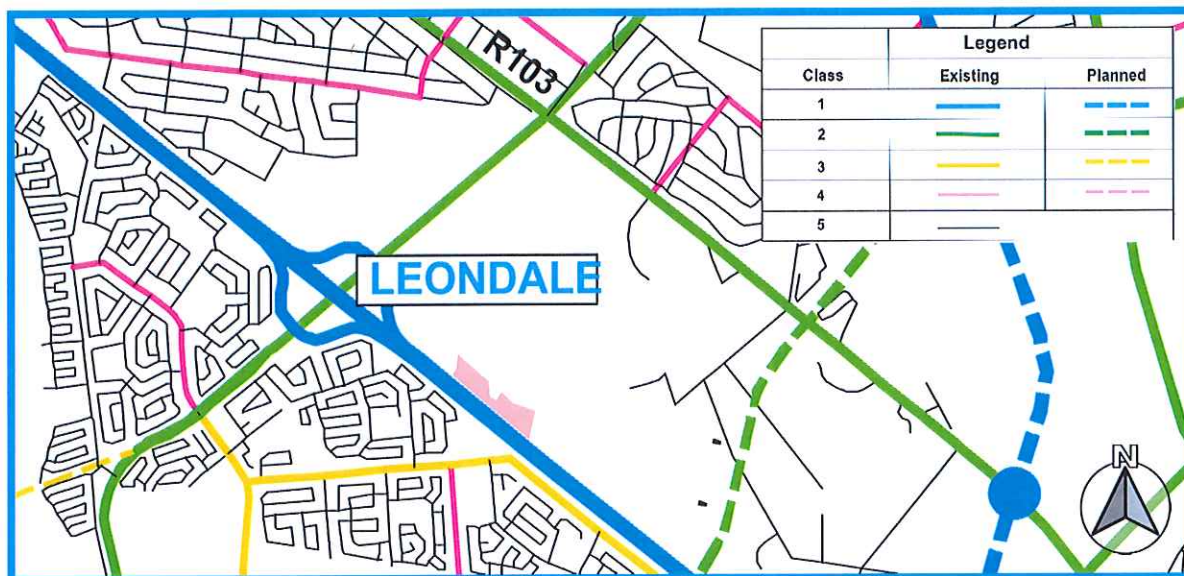


Figure 2.1: Existing Road Network

The classification of the existing high order roads in the vicinity of the site can be seen in the table below. Access from these mobility routes should be limited.

ROAD	CLASS	DESCRIPTION	ACCESS SPACING
N3 Highway	1	Principal Arterial	2.4km (interchanges)
Leondale Road	2	Major Arterial	800m (±15%)
Nederveen Highway (R103)	2	Major Arterial	800m (±15%)

The existing Mapleton township surrounding the subject site (which is not shown on the extract from the route codes map) has an extensive road network consisting of class 4 and 5 roads. Mapleton has one access from Leondale Road (running south-west to north-east) and two accesses from Nederveen Highway (R103; running north-west to south-east). The site will most likely be accessed from Luvuyo Street along the north eastern boundary of the site.

2.2 FUTURE ROAD NETWORK

There are three planned future routes in proximity to the site, the K123, K133 and K136 as can be seen in Figure 2.2. The preliminary designs for all of the K routes have however not been completed and/or accepted.

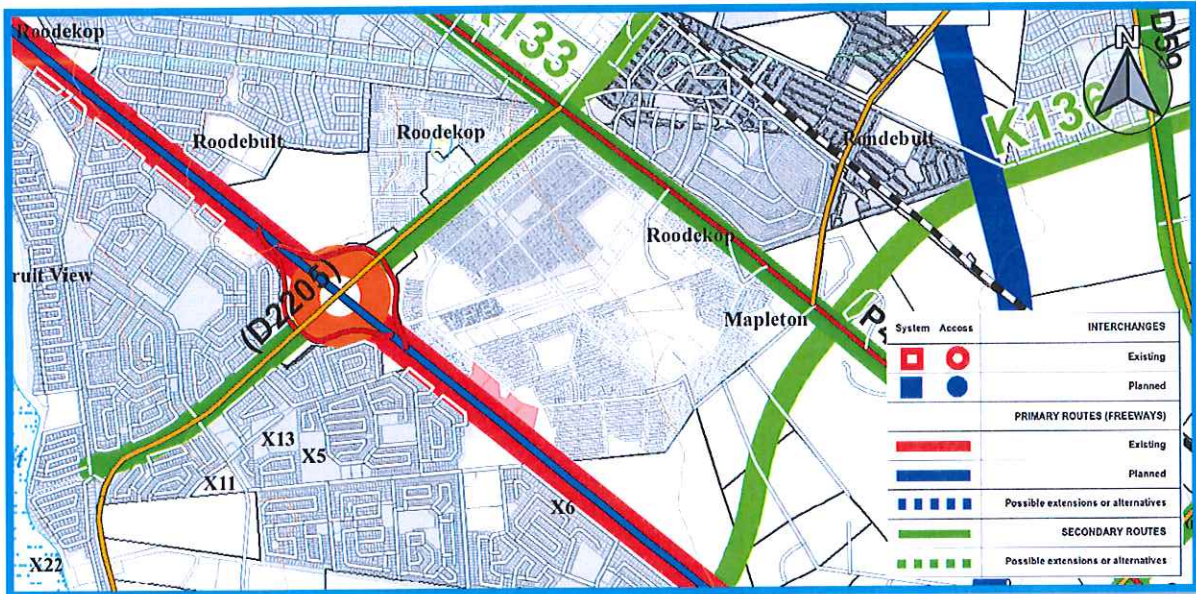


Figure 2.2: Future Roads – Planning (Extract of plan F5)

The preliminary designs for the sections of route K123 and K133 in the vicinity of the site has been accepted as can be seen in Figure 2.3.

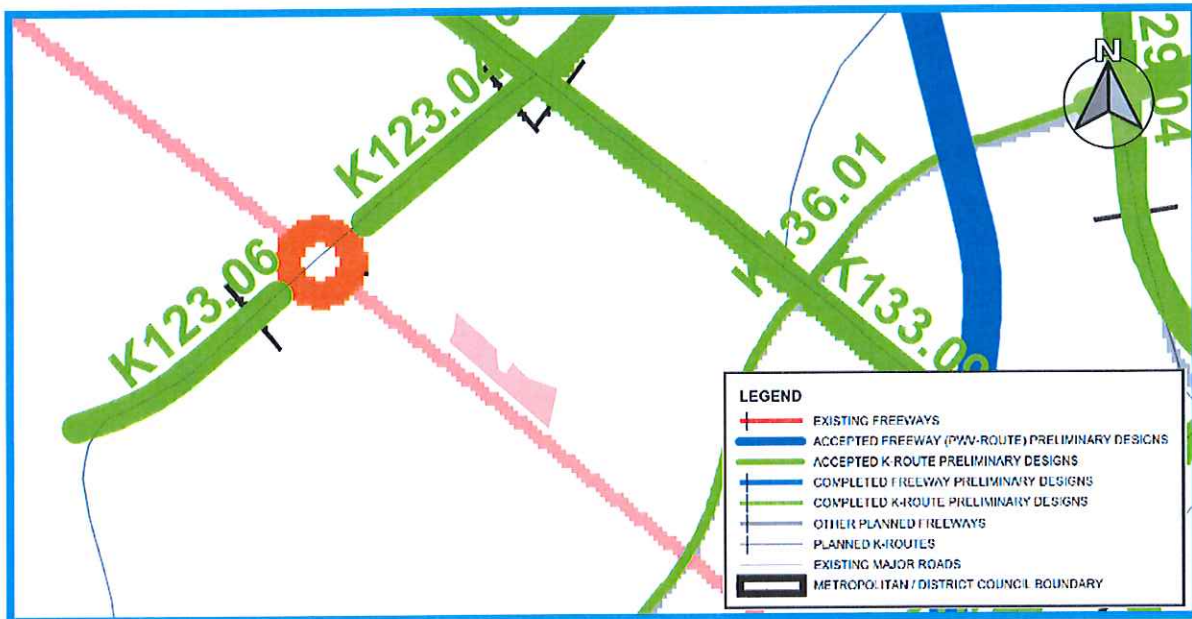


Figure 2.3: Future Roads – Accepted Preliminary Design (Extract of plan GPD 03/03)

A summary of the affected K-routes, the status of their planning/design and drawing numbers (if available) are provided in Table 2.1.

Table 2.1: K-Route Planning/Design Status

ROUTE NUMBER	STATUS	DRAWING SET
K123	Accepted preliminary design	PRS 77/138
K133	Accepted preliminary design	PRS 75/42
K136	Accepted route	unknown

It is not expected that the site will affect the proposed K136 route which is located further south of the site.

2.3 ESTIMATED TRIP GENERATION

It was assumed that the development would comprise a range of densities and based on the South African Trip Data Manual a trip generation rate of 0.85 trips/unit was considered to be representative.. A directional split of 70:30 during peak hours was assumed. Access to the development will need to accommodate the peak direction (70%) inbound and outbound. The trip generation can be seen in Table 2.2.

Table 2.2: Estimated Peak Hour Trip Generation

NUMBER OF UNITS	TOTAL TRIPS	PEAK DIRECTION
300	255	179

Based on the number of peak hour trips it is estimated that one access point to the proposed development will be sufficient.

2.4 ACCESS

Access to the proposed site should be provided from existing roads, especially Luvuyo Street along the north eastern boundary of the site. Access along roads should be provided in accordance with the required access spacing for the road class.

Should any K-routes be implemented, access will need to be provided to the whole Mapleton Ext. 10, including this site.

2.5 COMMENTS

This site will not be affected directly by existing planning for future provincial routes. The following comments should however be taken into consideration with the development thereof:

- A 20m building line applies along freeways for single storey buildings, for double storey buildings the building line is increased to 30m.
- A report in terms of Section 7 of the Gauteng Transport Infrastructure Act should not be required since the K-routes do not border the site and accesses along the proposed K-routes are already implemented to provide access to the existing Mapleton development.

A traffic impact study will be required to determine the impact of the development of this site on the external road network.