MOGALE CITY LOCAL MUNICIPALITY

PROPOSED TOWNSHIP

HOMES HAVEN EXTENSION 65
(Revision 0)



TRAFFIC IMPACT ASSESSMENT
OCTOBER 2024

MARITENG
CONSULTING ENGINEERS

PREPARED FOR:

Ringwood Investments 87 cc

PREPARED BY:

Mariteng Consulting Engineers
11 Van Tonder Street
VERWOERD PARK
1453

Cell: 082 854 7358
Email: louis@mariteng.co.za

EXECUTIVE SUMMARY

This report contains a Traffic Impact Assessment undertaken for the following:

- ✓ Proposed township Homes Haven Extension 62, to be established on Portion 243 of the Farm Roodekrans 183 I.Q.
- ✓ The property is situated along Viljoen Road and within the security-controlled area of Ruimsig Country Estate and falls in the jurisdiction of Mogale City.

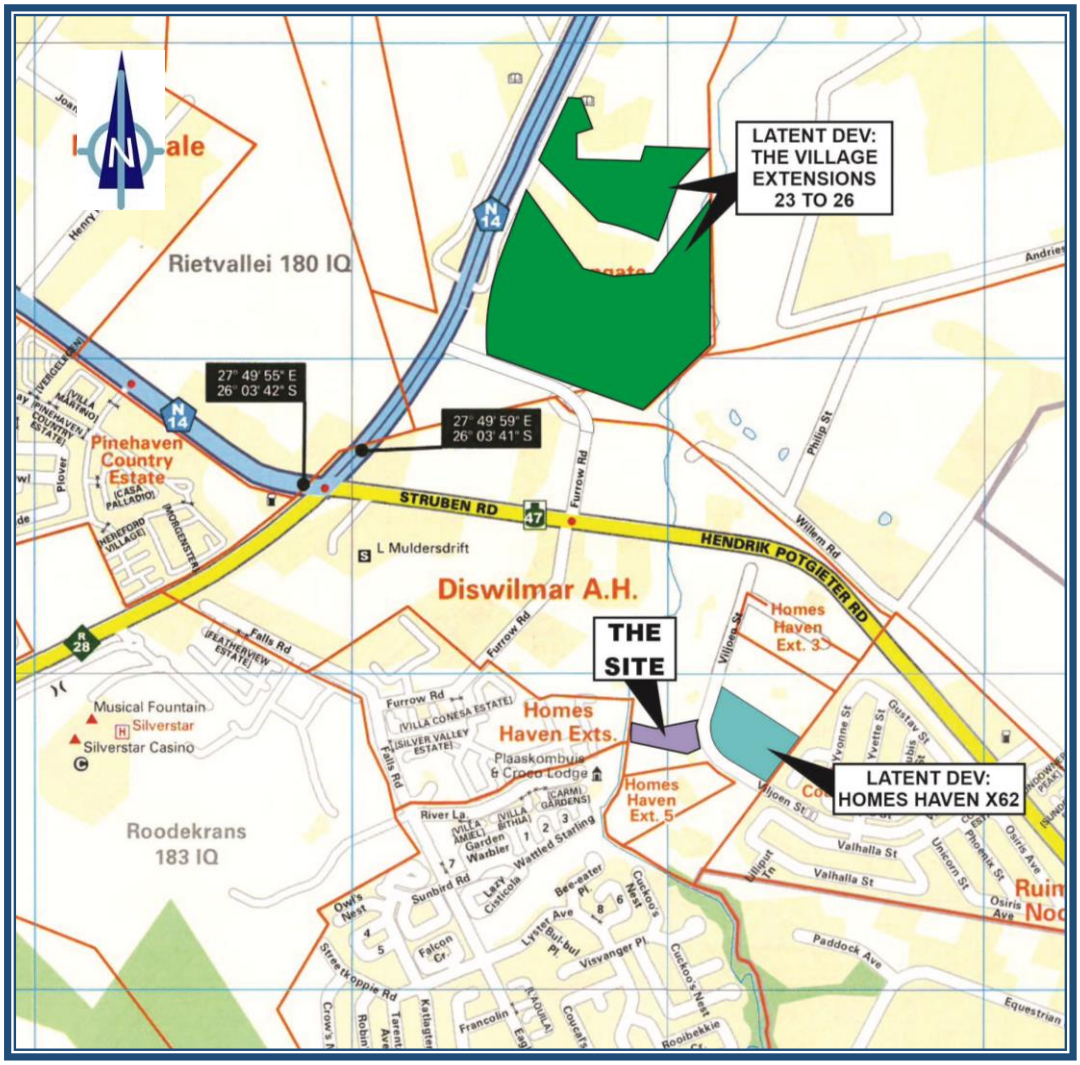
The land use controls are summarised as follows:

- ✓ Zoning : "Res 2" – 20 units; 4 rooms (guest house) and "Special" for a restaurant and bar

  675m² (NOTE: 200m² was previously approved under a consent use application)

The proposed development will generate approximately 21 and 53 trips, during the weekday morning and weekday afternoon peak hours.

Access to the applicant site is from Viljoen Road.



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PREPARED BY:

Mariteng Consulting Engineers
11 Van Tonder Street
VERWOERD PARK
1453
Office: (087) 821 7071
Cell: (082) 854 7358
E-mail: louis@mariteng.co.za

	Name	Signature	Date
AUTHOR/S OF REPORT	: L J du Toit	.....	01-10-2024
TECHNICAL SUPPORT	: Mr. R du Toit		
	: Me. E du Toit		
	: Me. L du Toit		
	: Me. M.E. Nkonde		

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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65
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1. INTRODUCTION

This report contains a Traffic Assessment undertaken for the following development:

- ✓ Proposed township Homes Haven Extension 62, to be established on Portion 243 of the Farm Roodekrans 183 I.Q.
- ✓ The property is situated along Viljoen Road and within the security-controlled area of Ruimsig Country Estate and falls in the jurisdiction of Mogale City.

The traffic report is prepared for:

- ✓ Ringwood Investments 87 cc

This study is prepared by traffic engineer:

Mr. Louis du Toit, 11 Van Tonder Street, Verwoerd Park, 1453

The traffic engineer has the following qualifications for undertaking Traffic Impact Assessment:

- ✓ Registered as a professional engineering technologist (Registration No. 200270072);
- ✓ Baccalaureus Technologiae – Engineering Civil (Transportation) (1997); and
- ✓ Experienced in the field of evaluating the traffic impact of developments.

"I Louis du Toit, author of this report, hereby certify that this study has been prepared according to requirements of the South African Traffic Impact and Site Traffic Assessment Manual (TMH 16 - Volume 1). I take full responsibility for the content of the report, including all calculations, conclusions and recommendations made herein".

Signature: .....

2. STUDY METHODOLOGY

2.1 INTRODUCTION

The traffic impact assessment is executed in accordance with the following guideline documents:

- ✓ Committee of Transportation Officials (COTO), August 2012, **South African Traffic Impact and Site Traffic Assessment Manual (TMH 16 - Volume 1) (Version 1.0)**.
- ✓ Committee of Transportation Officials (COTO), TMH 17, September 2012, **South African Trip Data Manual (Draft)**.

2.2 SCOPE OF WORKS

The scope of works is:

- ✓ Determine warrant for traffic assessment and intersections to be included as part of the assessment.
- ✓ Description of the proposed development (land use, FAR, density, etc.).
- ✓ Discuss the existing and future road network for the study area.
- ✓ Conduct traffic counts.
- ✓ Assess impact on provincial and national roads.
- ✓ Assess key intersections included in the study.
- ✓ Address access arrangement and assess level of service of access control system.
- ✓ Address public transport and non-motorized transport requirements.
- ✓ Assess the township layout, where necessary.
- ✓ Investigate future road master plan for the study area.
- ✓ Conclusions and recommendations.

2.3 WARRANTS FOR A TRAFFIC IMPACT STUDY

The development will generate more than 50 peak hour trips and in terms of the ***guideline document***, a comprehensive traffic study will be required.

2.4 INTERSECTIONS INCLUDED IN STUDY

In terms of the ***guideline document*** the intersections to be included as part of the traffic report are based on the following parameters:

- ✓ Include elements on which the development is likely to impact.
- ✓ Element shall be restricted to Class 4 and 5 roads in the vicinity up to the first Class 1 to 3 roads that can be reached by the Class 4 and 5 road networks.
- ✓ In denser urban areas the cut-off distance limit is 1.5km along the road network, provided there is at least one intersection. Where there is no such intersection, then the distance is to the first intersection.
- ✓ At least one intersection on either side of the development access.
- ✓ Judgement by the Assessor in selecting element that must be included in the study area (including first intersection on Class 1 to 3 road); and
- ✓ Discretion of the local authority.

Considering the above, the intersections included are as follows (also refer to **Figure 1**):

- ✓ Intersection 1: Hendrik Potgieter Road & Viljoen Road – Traffic signal controlled.

2.5 TECHNICAL DOCUMENTS CONSULTED AS PART OF THE ASSESSMENT

The following documentations are also used as part of this study:

- ✓ Institute of Transportation, 2nd Edition, **Transportation and Traffic Engineering Handbook**.
- ✓ Akcelik and Associates (Pty) Ltd, 2019, **Sidra Version 8.0**.
- ✓ Dr J Sampson, June 2018, **AutoJ**.
- ✓ Transport Research Board, 1994, **Highway Capacity Manual**.
- ✓ Committee of Transportation Officials (COTO), February 2014, **South African Traffic Impact and Site Traffic Assessment Standards and Requirements Manual (TMH 16 - Volume 2) (Version 1.01)**.
- ✓ Committee of Transportation Officials (COTO), August 2012, **South African Road Classification and Access Management Manual (TRH 26) (Version 1.0)**.
- ✓ Department of Transport, South African Development Community, **Road Traffic Signs Manual (SARTSM) Volume 1, Chapter 4 (3rd Edition)**.
- ✓ Department of Transport; 2006; **Guidelines for the design of Combi-Taxi Facilities**.

3. PROPOSED DEVELOPMENT

3.1 DESCRIPTION

This traffic assessment is undertaken for the proposed township Homes Haven Extension 65.

The location of the sites is shown in **Figure 1**.

3.2 EXISTING ZONING AND LAND USE RIGHTS

The site is currently zoned “Agricultural” and is improved with the Berlin Bear Restaurant which was approved under a “Consent Use” application in 1999, limited to 200m² (refer to details appended in **Annexure A**).

3.3 APPLICATION

The development controls for the applicant site are summarised as follows (also refer to extract from town planning application appended in **Annexure B**):

- ✓ Zoning : Res 2" – 20 units; 4 rooms (guest house) and 674.57m² ("As built" area) restaurant and bar (200m² were previously approved under a consent use application)

Also refer to site plan appended in **Annexure C**.

3.4 TIME FRAME OF DEVELOPMENT

The development will be undertaken in a single phase, and it is anticipated that the full development will be completed within the next 5 years.

4. STUDY AREA

4.1 EXTENT OF STUDY AREA

The study area is shown in **Figures 1** and **2**, and is surrounded by the following key streets:

- ✓ To the northeast of the applicant site is Hendrik Potgieter Road.
- ✓ To the north the applicant site abuts Viljoen Road.

4.2 LATENT LAND-USES AND DEVELOPMENTS IN STUDY AREA

As part of the study the following latent developments are included (refer to **Figure 1** for location):

a) The Village Extension 23 (Phase 1)

- ✓ Development potential = 274 erven

b) The Village Extension 24 (Phase 2)

- ✓ Development potential = 206 erven

c) The Village Extension 25 (Phase 3)

- ✓ Development potential = 144 erven

d) The Village Extension 26 (Phase 4)

- ✓ Development potential = 200 dwelling units

e) Homes Haven extension 62

- ✓ Development potential = 171 dwelling units.

The trip generation for the respective developments are summarised as follows:

- ✓ The Village Extension 23 (Phase 1) – 140 additional trips, during the weekday morning & weekday afternoon peak hours respectively.
- ✓ The Village Extension 24 (Phase 2) – 106 additional trips, during the weekday morning & weekday afternoon peak hours respectively.
- ✓ The Village Extension 25 (Phase 3) – 73 additional trips, during the weekday morning & weekday afternoon peak hours respectively.
- ✓ The Village Extension 26 (Phase 4) – 77 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

  NOTE 1: Mariteng prepared a comprehensive traffic report entitled ***"Proposed Townships The Village Extensions 23 to 26"***, dated March 2022. An extract from the report is appended in **Annexure D**. These townships will gain access from the extension of Furrow Road.

- ✓ Homes Haven extension 62 – 145 and 146 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

  NOTE 2: Mariteng prepared a comprehensive traffic report entitled ***"Proposed Townships Homes Haven Extension 62"***, dated December 2022. An extract from the report is appended in **Annexure E**. The township will gain access from the extension of Viljoen Street.

4.3 EXISTING ROAD AND STREET NETWORK

The existing surrounding road network is briefly discussed hereafter, and the location of the roads is shown in **Figure 1 and 2** respectively. The road classification is in line with the Mogale City Road Master Plan, and an extract is appended in **Annexure F**. The following roads are included in the study area:

- ✓ **Viljoen Road:** The road is a single lane surfaced road. The section of road located within the boundaries of the Ruimsig Country Estate does not carry through traffic. However, the section of road northeast of Hendrik Potgieter Road serves a wider road network and carries mainly through traffic. In terms of the road master planning the section of Viljoen Road inside the Estate is a proposed 20m "U4(b)_Residential Collector Street" and falls under the jurisdiction of Mogale City. The section of Viljoen Road to the northeast of Hendrik Potgieter Road is the future K56 and falls under the jurisdiction of Gauteng Province.

- ✓ **Hendrik Potgieter Road (future K72):** The road is a single lane road, with additional turning lanes at the key intersections, including Viljoen Road. The road links the study area with the R28 in the west and the main business areas of Johannesburg in the east. Hendrik Potgieter Road (future K72) is a Class 2 road and falls under the jurisdiction of Gauteng Province.

5. SCENARIOS

It is expected that the development will generate more than 50 peak hour trips and the following traffic assessment scenarios are analyzed:

- ✓ Scenario 1 : Base year (2024) AM peak background traffic.
- ✓ Scenario 2 : Base year (2024) AM peak latent rights plus development traffic.
- ✓ Scenario 3 : Target year (2029) AM peak background traffic.
- ✓ Scenario 4 : Target year (2029) AM peak latent rights plus development traffic.
- ✓ Scenario 5 : Base year (2024) PM peak background traffic.
- ✓ Scenario 6 : Base year (2024) PM peak latent rights plus development traffic.
- ✓ Scenario 7 : Target year (2029) PM peak background traffic.
- ✓ Scenario 8 : Target year (2029) PM peak latent rights plus development traffic.

6. DESIGN PEAK HOURS AND PEAK-HOUR FACTORS

6.1 DESIGN PEAK HOURS

Given the trip generation characteristics of the proposed development, the peak demand is during the weekday morning and weekday afternoon peak hours of the adjacent road network. The peak hours selected for this application is as follows:

- ✓ Weekday morning peak hour (06:45 – 07:45)
- ✓ Weekday afternoon peak hour (16:30 – 17:30)

6.2 PEAK HOUR FACTORS

The following peak hour factors (PHF) are used in the capacity analysis and level-of-service (LOS) calculations:

- ✓ Base year – peak hour factors obtained from the existing traffic counts.

- ✓ For the future horizon year, a PHF of 0.95 or LOS E is considered for a signalized controlled intersection. For unsignalized intersections a PHF of 0.85 is used.

7. GAUTENG TRANSPORT INFRASTRUCTURE ACT EVALUATION

The application is also evaluated in terms of the Gauteng Transport Infrastructure Act of 2001. Based on the Gauteng Strategic Road Network shown in **Figure 3**, no existing or future provincial roads are affected.

8. BACKGROUND TRAFFIC DEMAND

8.1 BASE YEAR BACKGROUND TRAFFIC DEMAND

Traffic counts were carried out on the road network on Wednesday the 9th of November 2022. The peak hour background traffic demand is summarised in **Figure 4** and the detailed results are appended in **Annexure G**.

NOTE: The 2022 counts were considered sufficient for the base year as negligible development took place over the last 2 years, in the study area, as well as the adjacent feeder areas abutting the study area.

8.2 IMPACT OF CHANGES TO ROAD NETWORK PLANNED BY THE ROAD AUTHORITIES

No roads are currently under construction or planned for the near future to be constructed, that could affect the outcome of this report.

NOTE: The Mariteng is familiar with the intension to construct the section of Road K72 and the proposed Pine Haven Interchange. The details are shown in **Annexure H**. However, based on discussions held with Mr Kumen Govender, at Gauteng Province, the project is not scheduled to commence within the next two financial years. Further to this, the construction of the section of road will have no negative impact on the intersection selected as part of this report.

8.3 FUTURE YEAR BACKGROUND TRAFFIC DUE TO TRAFFIC GROWTH

For the purpose of this study, an annual growth rate of 3.0% is considered reasonable for the study area. The growth rate is used to determine the expected future target year through traffic volumes from the base year volumes. Therefore, the annual growth rate compounded over 5 years yields an expected increase of 15.9% in the traffic volumes between base year and target year.

The projected growth rate is applied to the base year traffic volumes (refer to **Figure 4**) and the expected future target year peak hour traffic volumes are calculated, with details shown in **Figure 5** (Target Year).

8.4 FUTURE TRAFFIC VOLUMES DEMAND DUE TO LATENT LAND USES

As discussed under **Section 4.2**, the traffic report includes the latent development for ***"Proposed Townships The Village Extensions 23 to 26"***. The development traffic assigned to Hendrik Potgieter Road and Viljoen Road intersection is shown in **Figure 6**.

As discussed under **Section 4.2**, the traffic report includes the latent development for ***"Proposed Townships Homes Haven Extension 62"***. The development traffic assigned to Hendrik Potgieter Road and Viljoen Road intersection is shown in **Figure 7**.

The total latent demand is shown in **Figure 8**.

9. PROPOSED DEVELOPMENT TRAFFIC

9.1 INTRODUCTION

The proposed township is earmarked for the following land uses:

- ✓ Res 2" – 20 units
- ✓ 4 rooms (guest house)
- ✓ 674.57m² ("As built" area) restaurant and bar (200m² were previously approved under a consent use application – refer to details appended in **Annexure A**).

9.2 TRIP GENERATION BY PROPOSED DEVELOPMENT

The trip generation rates for the land use are obtained from the guideline document entitled ***"South African Trip Data Manual"***, and is be summarised as follows:

a) Multi-level Townhouses (COTO 232)

- ✓ Weekday morning peak hour: 0.75 trips/dwelling units, with a directional split of 25:75 (in:out)
- ✓ Weekday afternoon peak hour: 0.75 trips/dwelling units, with a directional split of 70:30 (in:out)

In terms of the ***"South African Trip Data Manual"*** provision is made to apply the following trip generation reduction factors.

- ✓ Mixed use development : 15%
- ✓ Low vehicle ownership : 30%
- ✓ Very low vehicle ownership : 50%

- ✓ Transit nodes/corridors : 15%

The applicant site is located within the boundaries of Ruimsig Country Estate, earmarked for the upper market income levels. It is expected that the development will be private vehicle orientated. Considering this, no trip generation adjustment factors are applied.

b) Guest House (COTO 350)

- ✓ Weekday morning peak hour: 0.45 trips/room, with a directional split of 50:50 (in:out)
- ✓ Weekday afternoon peak hour: 0.45 trips/room, with a directional split of 50:50 (in:out)

In terms of the ***"South African Trip Data Manual"*** provision is made to apply the following trip generation reduction factors.

- ✓ Mixed use development : 20%
- ✓ Low vehicle ownership : 30%
- ✓ Very low vehicle ownership : 50%
- ✓ Transit nodes/corridors : 15%

The applicant site is located within the boundaries of Ruimsig Country Estate, earmarked for the upper market income levels. It is expected that the development will be private vehicle orientated. Considering this, no trip generation adjustment factors are applied.

c) Restaurant, Quality (Sit-down) (COTO 931)

- ✓ Weekday morning peak hour: 0.75 trips/100m² GLA, with a directional split of 70:30 (in:out)
- ✓ Weekday afternoon peak hour: 11.80 trips/100m² GLA, with a directional split of 40:60 (in:out)

The guidelines also allow for 39% pass-by trips and 23% diverted trips, during the PM Peak. Given the location of the site, it is expected that these parameters will have negligible impact on the calculation and all trips are thus considered new. However, as part of the study it is assumed that 39% of the trips will be generated from inside the boundaries of the Ruimsig Country Estate (thus no need to pass through the main access gate on Viljoen Street).

In terms of the ***"South African Trip Data Manual"*** provision is made to apply the following trip generation reduction factors.

- ✓ Mixed use development : 10%
- ✓ Low vehicle ownership : 10%

- ✓ Very low vehicle ownership : 15%
- ✓ Transit nodes/corridors : 15%

The applicant site is located within the boundaries of Ruimsig Country Estate, earmarked for the upper market income levels. It is expected that the development will be private vehicle orientated. Considering this, no trip generation adjustment factors are applied.

9.3 SUMMARY OF TRIP GENERATION BY PROPOSED DEVELOPMENT

Considering the discussions in **Section 9.2** the total trip demand is summarised in **Table 1**. Also refer to **Annexure I** for detailed calculations.

Table 1: Total Number of Development Trip

DESCRIPTION	LAND USE		TRIP RATE			DIRECTIONAL SPLIT (%)		TRIP GENERATION		
	TYPE	EXTENT	TMH 17 RATE	LESS ADJUST. FACTOR	FINAL RATE	IN	OUT	IN	OUT	TOTAL
WEEKDAY AM PEAK HOUR										
"Res 2" - Dwelling	Units	20	0.75	0%	0.75	25%	75%	4	11	15
"Res 2" Guest House	Rooms	4	0.45	0%	0.45	50%	50%	1	1	2
"Special" - Restaurant	m²	475 (m²)#	0.75	0%	0.75	70%	30%	2	2	4
TOTAL	-	-	-	-	-	-	-	7	14	21
WEEKDAY PM PEAK HOUR										
"Res 2" - Dwelling	Units	20	0.75	0%	0.75	70%	30%	11	5	16
"Res 2" Guest House	Rooms	4	0.45	0%	0.45	50%	50%	1	1	2
"Special" - Restaurant	m²	475 (m²)#	11.8	0%	11.8	40%	60%	14	21	35
TOTAL	-	-	-	-	-	-	-	26	27	53

NOTE: (1) Trip calculations roundup for purpose of this study.

NOTE: (2) 475m²# - Exclude 200m² already approved under previous consent use and restaurant is currently operating.

It can be concluded that the development will generate approximately 21 and 53 trips, during the weekday morning and weekday afternoon peak hours respectively. Although the detailed calculations appended in **Annexure H** show a higher trip generation for the Saturday peak, the background demand on the road network is typically lower compared to the weekday morning and weekday afternoon peak hours. Further to this, the combined trips generated by the "Latent Developments" is higher during the weekday peak periods. Considering this, the weekday morning

and weekday afternoon peak hours were evaluated for the purpose of this report.

10. TRIP DISTRIBUTION AND ASSIGNMENT – PROPOSED DEVELOPMENT

10.1 TRIP DISTRIBUTION

The most likely direction from which the generated traffic will approach and leave the study area is determined by taking the following in consideration:

- ✓ The location of the development in relation to main central business districts/residential areas.
- ✓ Local knowledge of the study area.
- ✓ The existing traffic flows on the adjacent road network during the respective peak hours.

Based on the current traffic flow observed the distribution is summarised as follows:

a) "Res 2" (Dwelling and guest house) – refer to **Figure 9**

- AM Peak: Hendrik Potgieter Road – North: Inbound = 26%; Outbound = 27%
- AM Peak: Viljoen Street – East: Inbound = 30%; Outbound = 17%
- AM Peak: Hendrik Potgieter Road – South: Inbound = 44%; Outbound = 56%
- PM Peak: Hendrik Potgieter Road – North: Inbound = 28%; Outbound = 43%
- PM Peak: Viljoen Street – East: Inbound = 44%; Outbound = 20%
- PM Peak: Hendrik Potgieter Road – South: Inbound = 28%; Outbound = 37%

b) "Special" (Restaurant) – refer to **Figure 10**

- AM/PM Peak: Hendrik Potgieter Road – North: Inbound = 45%; Outbound = 45%
- AM/PM Peak: Viljoen Street – East: Inbound = 10%; Outbound = 10%
- AM/PM Peak: Hendrik Potgieter Road – South: Inbound = 45%; Outbound = 45%

10.2 TRIP ASSIGNMENT

Given the trip distributions, the development traffic was assigned to the road network. The details are shown in **Figure 9** ("Res 2") and **Figure 10** ("Special"), with the total demand summarized in **Figure 11**.

11. TOTAL TRAFFIC DEMAND

The total traffic demand is determined by adding the latent traffic (**Figure 8**) and the development traffic to the road network (**Figure 11**). The details are shown in **Figure 12** (base year) and **Figure 13** (target year).

12. CAPACITY ANALYSIS OF INTERSECTIONS

12.1 INTRODUCTION

The following methodology is adopted in evaluating the intersection/s included as part of this study:

- ✓ Analyse the background traffic demand, using the existing intersection layout.
- ✓ Determine the road upgrades required to accommodate the background traffic scenarios.
- ✓ Determine the road upgrades required to accommodate the additional development traffic.
- ✓ A level-of-service E or worse and a v/c exceeding 0.95 on any approach at an intersection is accepted as the stage when road upgrading will be implemented.

12.2 MEASURE OF EFFECTIVENESS

The capacity analysis is done according to the method as contained in the ***Highway Capacity Manual*** software program. The operation of an intersection is defined in terms of levels-of-service (LOS).

The operation of an intersection is defined in terms of levels-of-service (LOS) and is the qualitative measure used by Traffic Engineers to describe operational conditions within a traffic stream.

The LOS for a ***traffic light control*** intersection is defined in terms of average total vehicle delay (not average stop delay), where delay is a measure of driver discomfort, frustration, fuel consumption and lost travel time.

However, for an ***unsignalized intersection*** the average delay for any minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS for an approach value are based on the worst delay for any vehicle movements. The average intersection delay is not a good LOS measure for two-way control intersection, as the major

through movements normally have a zero delay. The average intersection LOS is therefore recorded as "NOT APPLICABLE" in the SIDRA results. The AUTOJ, prepared by Dr Sampson provides a LOS for each movement, irrespective of the control measure and lane configuration.

The description for each LOS category is summarised as follows:

LOS A: The LOS occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all.

LOS B: This level generally occurs with good progression, short cycle lengths or both. More vehicles stop than with LOS A, causing higher levels of average delay.

LOS C: These higher delays may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant at this level, though many vehicles still pass through the intersection without stopping.

LOS D This level, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume over capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines considerably. Individual cycle failures are noticeable.

LOS E: This level is considered by many road agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, or high volume over capacity ratios. Individual cycle failures are frequent occurrences.

LOS F: This level, considered to be unacceptable to most drivers, often occurs with oversaturation, that is, when arrival flow rates exceed the capacity of the intersection.

The thresholds for signalized intersection and stop control intersection are summarised in **Table 2**.

Table 2: LOS Thresholds - Delays as per HCM Methodology

LEVEL OF SERVICE	DELAY/VEHICLE	
	SIGNALS/ROUNDABOUTS	STOP & YIELD
A	$d \leq 10$	$d \leq 10$
B	$10 < d \leq 20$	$10 < d \leq 15$
C	$20 < d \leq 35$	$15 < d \leq 25$
D	$35 < d \leq 55$	$25 < d \leq 35$
E	$55 < d \leq 80$	$35 < d \leq 50$
F	$80 < d$	$50 < d$

NOTE: Based on the AUTOJ1511 User Manual, Section 2.7 "Geometry" (page 26) the length of a turning lane is calculated as follows:

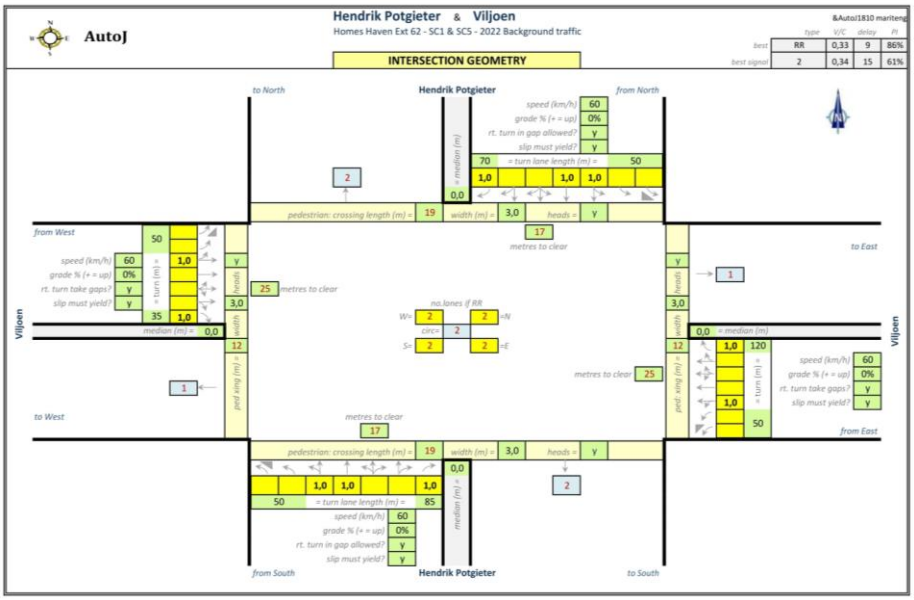
"Turn lane length (m). Enter the actual auxiliary lane lengths (full lane plus half the taper) for left and right turning lanes. By default, these lanes are set at 50m (straight lanes are assumed to be "infinite"). If the lane is too short, the recommended lane length for a random variation in arrivals will appear in white on red to warn the user. When the

turning lane is too short, traffic will on occasions spill over into the adjacent lane, alternatively turning vehicles will be blocked and not able to enter the lane. AutoJ will adjust for this by adding the overflow volume to the adjacent straight lane and give more green time to that approach."

12.3 EXISTING INTERSECTION CONFIGURATIONS

Sidra 8.0 and **AUTOJ** are used to determine the capacity for each intersection. The conceptual intersection layout for each intersection evaluated as part of this application is illustrated below:

a) Intersection 1 – Hendrik Potgieter Road & Viljoen Road



12.4 DISPLAY OF CAPACITY ANALYSIS - EXISTING ROAD NETWORK

The following figures should be read in conjunction with the capacity analysis:

- ✓ Figure 4: Existing Weekday Peak Hour Traffic Volumes - Background Traffic
- ✓ Figure 5: Estimated (2029) Weekday Peak Hour Traffic Volumes - Background Traffic
- ✓ Figure 12: Estimated (2024) Weekday Peak Hour Traffic Volumes – Latent plus Development Traffic
- ✓ Figure 13: Estimated (2029) Weekday Peak Hour Traffic Volumes – Latent plus Development Traffic

The capacity analysis results are summarised hereafter, with detailed results appended in **Annexure J**.

a) Intersection 1 – Hendrik Potgieter Road & Viljoen Road

Table 3: Level of Service Results: Intersection 1 – Hendrik Potgieter Road & Viljoen Road

PEAK	SCENARIO	TOTAL AVERAGE VEHICLE DELAY & LEVEL OF SERVICE (LOS)														
		APPROACH FROM NORTH			APPROACH FROM SOUTH			APPROACH FROM WEST			APPROACH FROM EAST			INTERSECTION		
		S	D	L	S	D	L	S	D	L	S	D	L	S	D	L
AM	SC1	0.63	24.0	C	0.62	23.0	C	0.46	39.0	D	0.62	42.0	D	0.61	27.0	C
	SC2	0.66	16.0	B	0.61	15.0	B	0.51	22.0	C	0.64	27.0	C	0.62	17.0	B
	SC3	0.73	27.0	C	0.72	27.0	C	0.57	42.0	D	0.66	43.0	C	0.71	30.0	C
	SC4	0.78	23.0	C	0.73	21.0	C	0.60	30.0	C	0.64	31.0	C	0.72	24.0	C
PM	SC5	0.60	23.0	C	0.43	19.0	B	0.24	37.0	D	0.75	49.0	D	0.56	27.0	C
	SC6	0.64	17.0	B	0.50	14.0	B	0.25	17.0	B	0.58	22.0	C	0.56	17.0	B
	SC7	0.86	44.0	D	0.62	29.0	C	0.24	34.0	C	0.66	38.0	D	0.72	38.0	D
	SC8	0.82	33.0	C	0.67	25.0	C	0.55	37.0	D	0.74	45.0	D	0.74	33.0	C

Note: S = Degree of Saturation (v/c); D = Delay (sec/veh); L = Level of service (LOS)

Based on the results the following:

- ✓ **Scenarios 1 & 5:** The intersection operates at acceptable LOS.
- ✓ **Scenarios 2 & 6:** The intersection will operate at acceptable LOS. The results are based on amended signal phasing settings.
- ✓ **Scenarios 3 & 7:** The intersection will operate at acceptable LOS. The results are based on amended signal phasing settings.
- ✓ **Scenarios 4 & 8:** The intersection will operate at acceptable LOS. The results are based on amended signal phasing settings.

13. PROPOSED ACCESS ARRANGEMENTS

The proposed access arrangements are summarised as follows: (also refer to **Mariteng Plan No.: 194-39-01 (Rev 1)**, appended in **Annexure K**):

a) Erf 1 (Dwelling & Guest House)

- ✓ Access from Viljoen Road.
- ✓ One inbound and one outbound lane, with a total width of 7.5m.

  NOTE: In the event the inbound lanes are at a later stage separated by means of a median island, then the minimum lane width is 4.5m.
- ✓ No access control is provided at the access point.
- ✓ No vertical structures are currently proposed at the site access. However, should the need

arise during the detail planning phase then provision should be made for a minimum vertical clearance of 5.1m.

- ✓ Access bellmouth on local authority road to have a minimum radius of 8.0m.

b) Erf 2 (Restaurant)

- ✓ Access from Viljoen Road.
- ✓ One inbound and one outbound lane, with a total width of 7.5m.

  NOTE: In the event the inbound lanes are at a later stage separated by means of a median island, then the minimum lane width is 4.5m.
- ✓ No access control is provided at the access point.
- ✓ No vertical structures are currently proposed at the site access. However, should the need arise during the detail planning phase then provision should be made for a minimum vertical clearance of 5.1m.
- ✓ Access bellmouth on local authority road to have a minimum radius of 8.0m.

14. PUBLIC TRANSPORT & NON-MOTORIZED TRANSPORT REQUIREMENTS

14.1 INTRODUCTION

In terms of the National Land Transport Transition Act, Act 5 of 2009 (Section 38), the study also addresses the impact of the development on the public transport network. The assessment assesses the additional transport trips that will be generated, the expected traveling pattern of these users, as well as the impact it may have on the existing public transport network.

14.2 EXISTING PUBLIC TRANSPORT INFRASTRUCTURE

The applicant site is located within 720m from Hendrik Potgieter Road, a well-established taxi route. No formal stops are provided at the Hendrik Potgieter Road/Viljoen Road intersection and taxis make unscheduled stops as and when required.

14.3 PROPOSED PUBLIC TRANSPORT INFRASTRUCTURE

It is expected that the dwelling units, guest house and restaurant will generate some public transport trips. The current service provided along Hendrik Potgieter Road is sufficient to accommodate the additional demand for the dwelling units and guest house. It is standard practice for restaurant owners to arrange transport for workers, especially staff serving evening seating.

Thus, no additional facilities are required.

14.4 EXISTING NON-MOTORIZED TRANSPORT INFRASTRUCTURE

No paved walkways are provided along Viljoen Road.

14.5 PROPOSED NON-MOTORIZED TRANSPORT FACILITIES

No additional facility required, unless otherwise stated by Mogale City.

15. SITE LAYOUT & PARKING REQUIREMENTS

The Site Development Plan (also refer to **Annexure C**) is evaluated from a traffic engineering viewpoint and the following comments are provided:

- ✓ All parking is provided on the property, in line with the Mogale City Local Municipality.
- ✓ The parking requirements are as follows:

  a) "Res 2" (Dwelling)

  - 1 parking bay/2-bedroom unit
  - 1 Open parking bay/5 units
  - 1 Loading bay/10 units

  b) "Special" (Restaurant)

  - 6 parking bay/100m² GLA
  - 1 Loading bay for first 2 000m² GLA

  c) Guest house

  - 1 bay/room

- ✓ The parking calculations are as follows

a) "Res 2" (Dwelling)

- Required: 24 bays; Provided: 46 bays (surplus – 22 bays)

b) "Special" (Restaurant)

- Required: 61 bays; Provided: 67 bays (surplus – 6 bays)

c) Guest house

- Required: 4 bays; Provided: 4 bays

✓ The internal aisle width, between perpendicular parking bays is 7.5m (5.0 x 2.5m bays).

✓ Refuse collection from Viljoen Street.

✓ Delivery/collection area from back of restaurant.

✓ Furniture removal trucks will serve the dwelling units from the parking areas allocated to the land use.

✓ The final layout is subject to approval by the Fire Department.

16. EVALUATION OF THE ACCESS CONTROL SYSTEM AT THE ACCESS TO RUIMSIG COUNTRY PLACE ESTATE

As part of the study the operational assessment of the existing access control system serving the Ruimsig Country Estate was evaluated.

The queue theory as described in the ***"Transportation and Engineering Handbook"*** is used to determine the queuing of vehicles at the access point.

The analysis is based on a 90th percentile probability that the operation at the access control point will have no negative impact on the traffic movements on the adjacent road system.

In terms of the guideline document various gate operating systems have different rates, affecting the capacity of the gate/access and in turn the number of vehicles that can be handled. The design service rates for different control systems are shown in **Table 4** below.

Table 4: Access Control Service Flow Rates

SERVICE FLOW RATES (VEH/H) FOR DIFFERENT CONTROL TYPES	
CONTROL TYPE	**DESIGN SERVICE RATE (VPH)**
Swipe Magnetic Card	480
Remote Controlled Gates	450
Ticket Dispenser: Automatic – Viljoen Access Gate	390 – 450
Ticket Dispenser: Push Button – Proposed site access	220 – 360
Pin Number Operated Gates	150
Pay Fee on Entry	120
Cell Phone Operated Gates (Gate opens when call is received)	100
Manual Operating, Visitor Completes Form	80
Intercom Operated Gates (Visitor Contacts Resident by Intercom)	50

The operational characteristics of the existing Ruimsig Country Estate access is discussed hereafter. The queuing analysis results are based on:

- ✓ Assessment is summarised in **Table 5**, with detailed results appended in **Annexure L**.
- ✓ Two inbound and two outbound lanes. One lane per direction is allocated for "Residents Only" use.
- ✓ 24/7 security control at the access gate.
- ✓ The weekday morning (outbound) and afternoon (inbound) peak hour traffic was assessed – worst-case scenario.
- ✓ Applying a service rate of 420 vph (average of service rate parameters), as illustrated in **Table 4**.

Table 5: Expected Queuing and Stacking Requirements at the Security Control Point – Existing Ruimsig Country Estate Access

DESCRIPTION	ANALYSIS RESULTS	
	AM OUTBOUND	PM INBOUND
Average arrival rate inbound (vph)	439	408
Average service rate (sec/veh)	8.57	8.57
Average service rate (services/hour)	420	420
Number of lane (gates)	2	2
Traffic intensity per lane	0.52	0.49
90th percentile queue length	0.09	0.08
Average number of vehicles in system	1.7	1.1
Average delay (sec)	14.0	10.1
0.Average number of vehicles per gate	0.9	0.6

It can be concluded that the existing access control point on Viljoen Road, serving the estate will operate at acceptable LOS, with the additional development traffic.

17. CONCLUSIONS AND RECOMMENDATIONS

17.1 CONCLUSIONS

The findings of the report are summarised as follows:

i. The report is in support of the proposed township and the land uses are discussed under the ***"Recommendations"***.

ii. **Latent development:** As part of this study the impact of The Village Extensions 23 to 26 and Homes Haven Extension 62 were evaluated as part of this assessment.

iii. **Gauteng Infrastructure Act:** The applicant site is not affected by any existing or future provincial roads.

iv. **Development trips:** The proposed development will generate approximately 21 and 53 additional trips, during the weekday morning and weekday afternoon peak hours respectively.

v. **Proposed road network upgrade – background traffic**: No external road upgrade required.

vi. **Proposed road network upgrade – development traffic**: No external road upgrade required. However, the upgrade of the traffic signal settings at the Hendrik Potgieter

Road/Viljoen Road intersection is required. Refer to details under the **"Recommendations"**.

vii. **Access arrangements:** At present no site development plan is available and certain access arrangements were assumed as part of this report. The details are discussed under the ***"Recommendations"***.

viii. **Public transport assessments:** The area is well served by public transport service providers throughout the day and no additional facilities are required.

ix. **Non-motorized public transport assessments:** No additional facilities required, unless otherwise requested by Mogale City.

x. **Mogale Road Master Plan:** The applicant site acknowledges the existing road master plan.

17.2 RECOMMENDATIONS

Based on the traffic impact assessment, it is recommended that the proposed township Homes Haven Extension 62, to be established on Portion 243 of the Farm Roodekrans 183 I.Q., be approved for:

- ✓ Zoning : "Res 2" – 20 units; 4 rooms (guest house) and "Special" for a restaurant and bar 675m² (**NOTE:** 200m² was previously approved under a consent use application)

The approval is subject to the following:

i. Implementing the following access arrangements (refer to **Mariteng Plan No.: 194-39-01 (Rev 1**):

a) Erf 1 (Dwelling & Guest House)

- ✓ Access from Viljoen Road.
- ✓ One inbound and one outbound lane, with a total width of 7.5m.

NOTE: In the event the inbound lanes are at a later stage separated by means of a median island, then the minimum lane width is 4.5m.

- ✓ No access control is provided at the access point.
- ✓ No vertical structures are currently proposed at the site access. However, should the need arise during the detail planning phase then provision should be made for a minimum vertical clearance of 5.1m.
- ✓ Access bellmouth on local authority road to have a minimum radius of 8.0m.

b) Erf 2 (Restaurant)

- ✓ Access from Viljoen Road.
- ✓ One inbound and one outbound lane, with a total width of 7.5m.

NOTE: In the event the inbound lanes are at a later stage separated by means of a median island, then the minimum lane width is 4.5m.

- ✓ No access control is provided at the access point.
- ✓ No vertical structures are currently proposed at the site access. However, should the need arise during the detail planning phase then provision should be made for a minimum vertical clearance of 5.1m.
- ✓ Access bellmouth on local authority road to have a minimum radius of 8.0m.

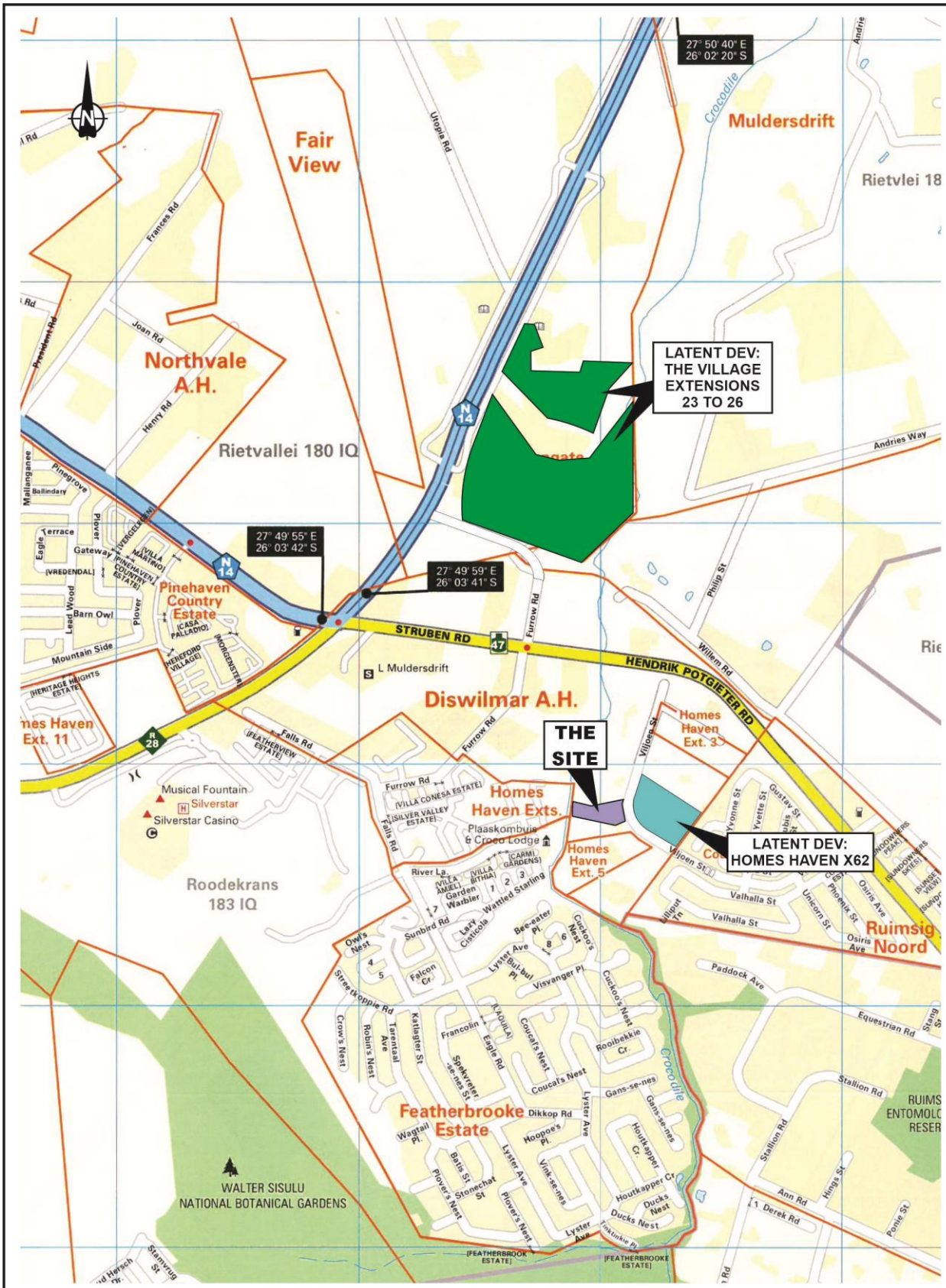
c) The developer to upgrade the signal settings for the Hendrik Potgieter Road & Viljoen Road intersection.

d) Based on the site plan submitted all parking can be provided on site. The final layout and design standards to comply with council parking standards and design parameters.

e) The findings of this report are valid for 5 years.

FIGURES

Figure 1: Locality Plan
Figure 2: Aerial View of Study Area
Figure 3: Gauteng Strategic Road Network
Figure 4: Existing Weekday Peak Hour Traffic Volumes - Background Traffic
Figure 5: Estimated (2029) Weekday Peak Hour Traffic Volumes - Background Traffic
Figure 6: Trip Assignment (Veh's/hr) – Latent Development – The Village Ext 23 – 26
Figure 7: Trip Generation Characteristics – Latent Development – Homes Haven Extension 62
Figure 8: Total Trip Assignment (Veh's/hr) – Latent Development
Figure 9: Trip Generation Characteristics – "Res 2"
Figure 10: Trip Generation Characteristics – "Special" (Restaurant)
Figure 11: Total Trip Assignment (Veh's/hr) – Proposed Development
Figure 12: Estimated (2024) Weekday Peak Hour Traffic Volumes – Latent plus Development Traffic
Figure 13: Estimated (2029) Weekday Peak Hour Traffic Volumes – Latent plus Development Traffic

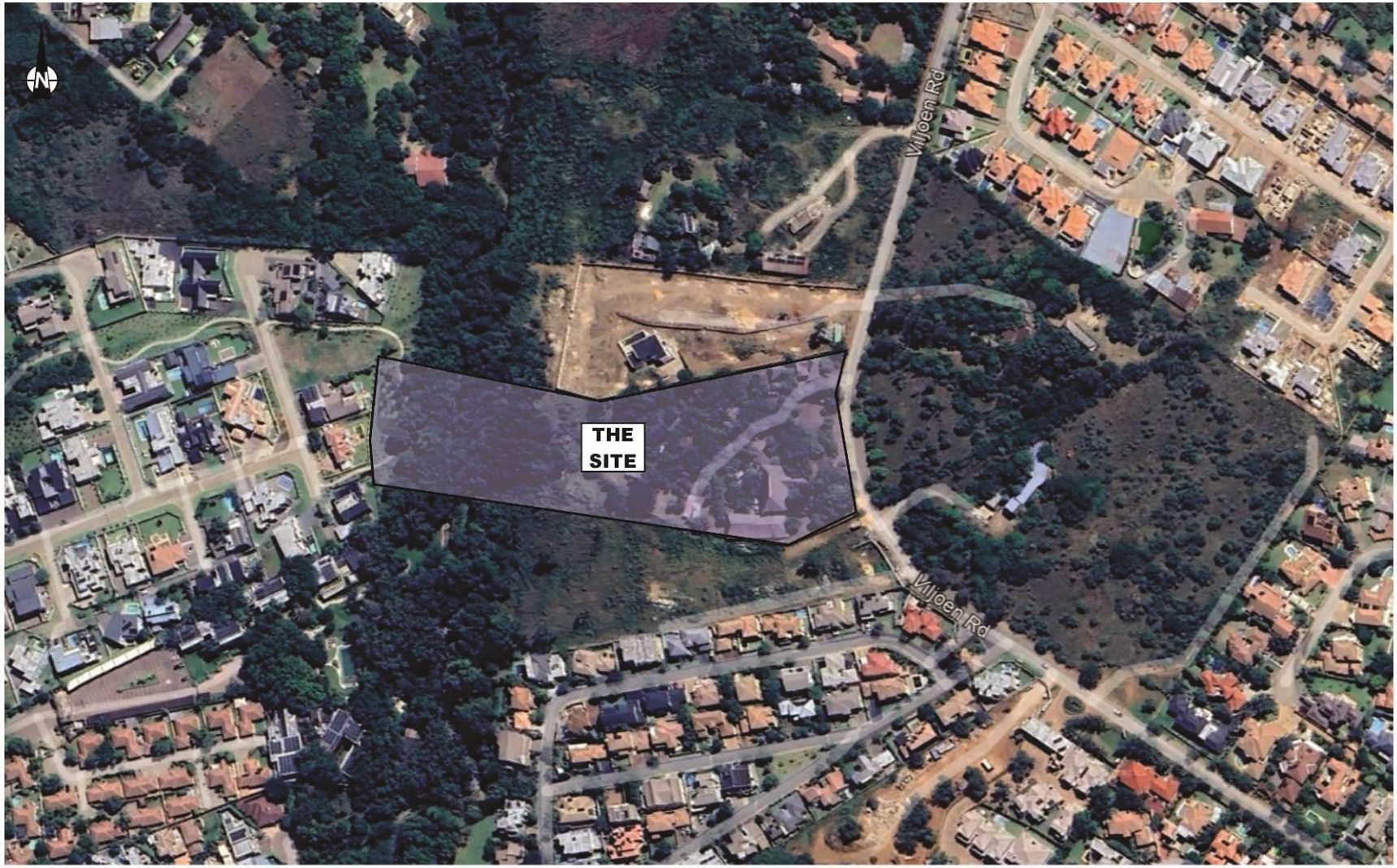


MARITENG CONSULTING ENGINEERS
11 Van Tonder St
Verwoerd Park
1449
Tel: 087 821 7071
Fax: 086 547 8882
Cell: 082 854 7358

HOMES HAVEN EXTENSION 65

LOCALITY PLAN

FIGURE 1



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CONSULTING ENGINEERS
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Verwoerd Park
1449
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Fax : 086 547 8882
Cell : 082 854 7358

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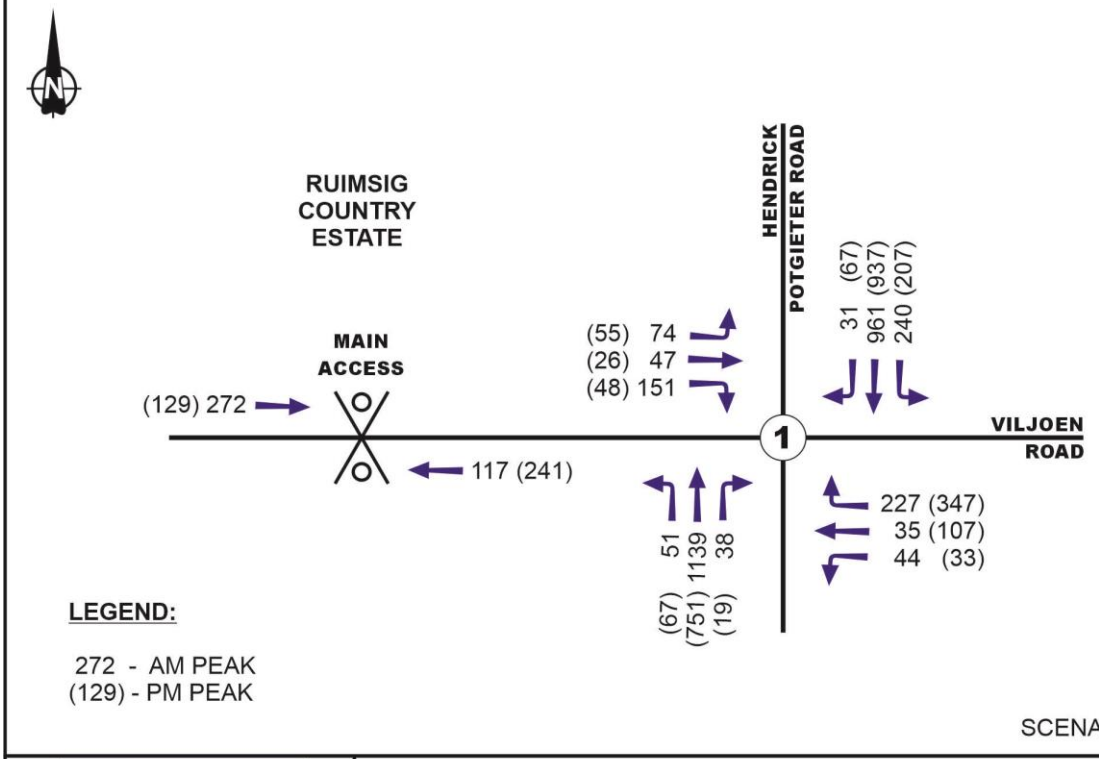
AERIAL VIEW OF THE STUDY AREA

FIGURE

2



MARITENG CONSULTING ENGINEERS 11 Van Tonder St Verwoerd Park 1449 Tel: 087 821 7071 Fax: 086 547 8882 Cell: 082 854 7358	**HOMES HAVEN EXTENSION 65**	FIGURE
	GAUTENG STRATEGIC ROAD NETWORK	3



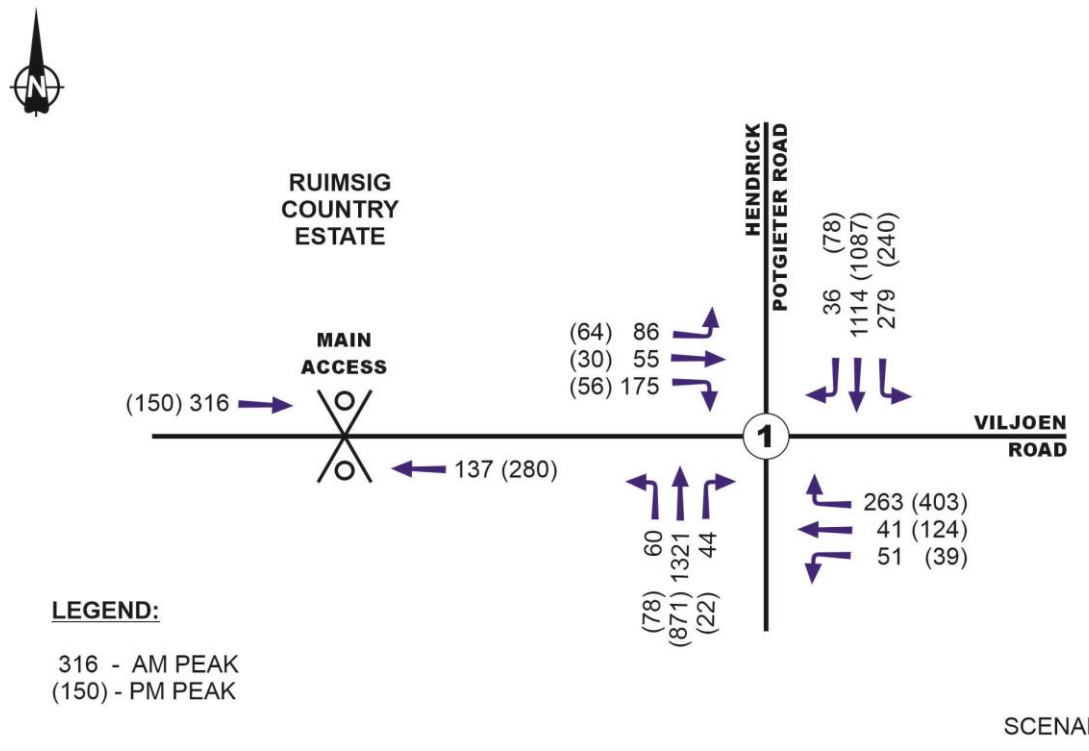
SCENARIOS 1 & 5

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11 Van Tonder St
Verwoerd Park
1449
Tel: 087 821 7071
Fax: 086 547 8882
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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

EXISTING WEEKDAY PEAK HOUR TRAFFIC VOLUMES - BACKGROUND TRAFFIC

FIGURE 4



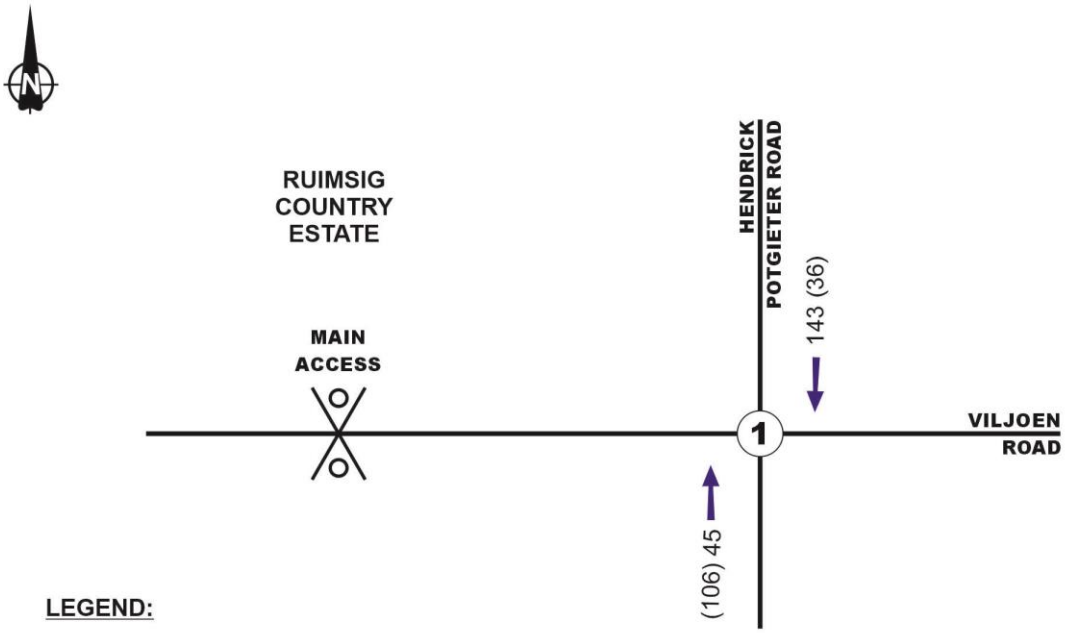
SCENARIOS 3 & 7

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Verwoerd Park
1449
Tel: 087 821 7071
Fax: 086 547 8882
Cell: 082 854 7358

PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

ESTIMATED (2029) WEEKDAY PEAK HOUR TRAFFIC VOLUMES - BACKGROUND TRAFFIC

FIGURE 5

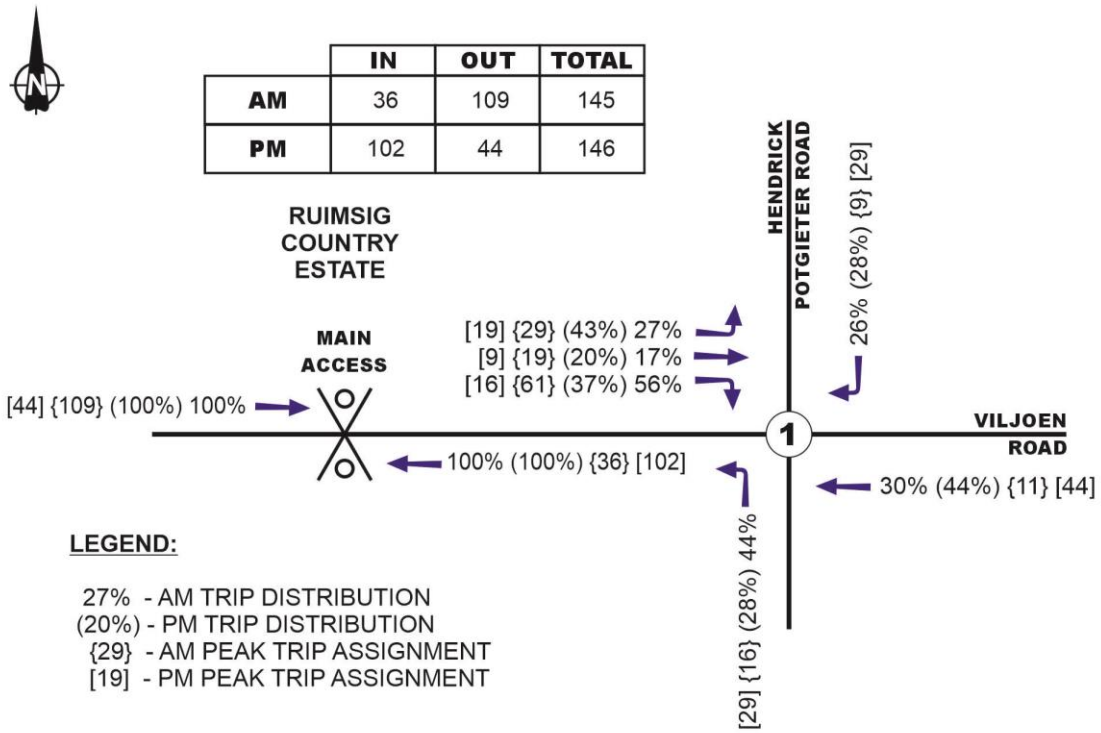


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11 Van Tonder St
Verwoerd Park
1449
Tel: 087 821 7071
Fax: 086 547 8882
Cell: 082 854 7358

PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

TRIP ASSIGNMENT (VEH/HR) - LATENT DEVELOPMENT - THE VILLAGE EXT 23-26

FIGURE 6

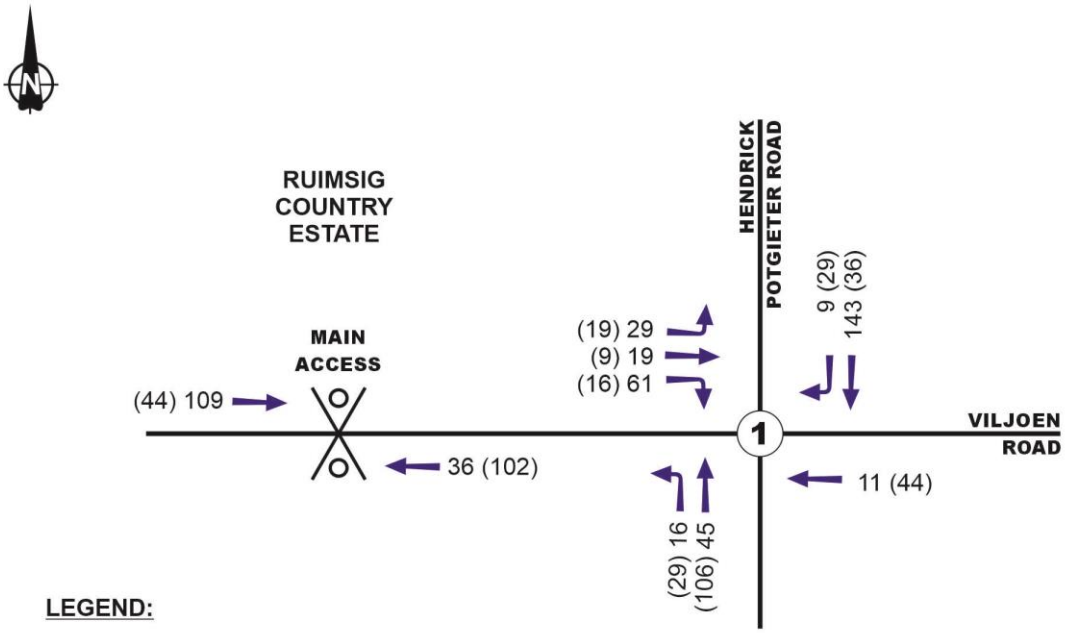


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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

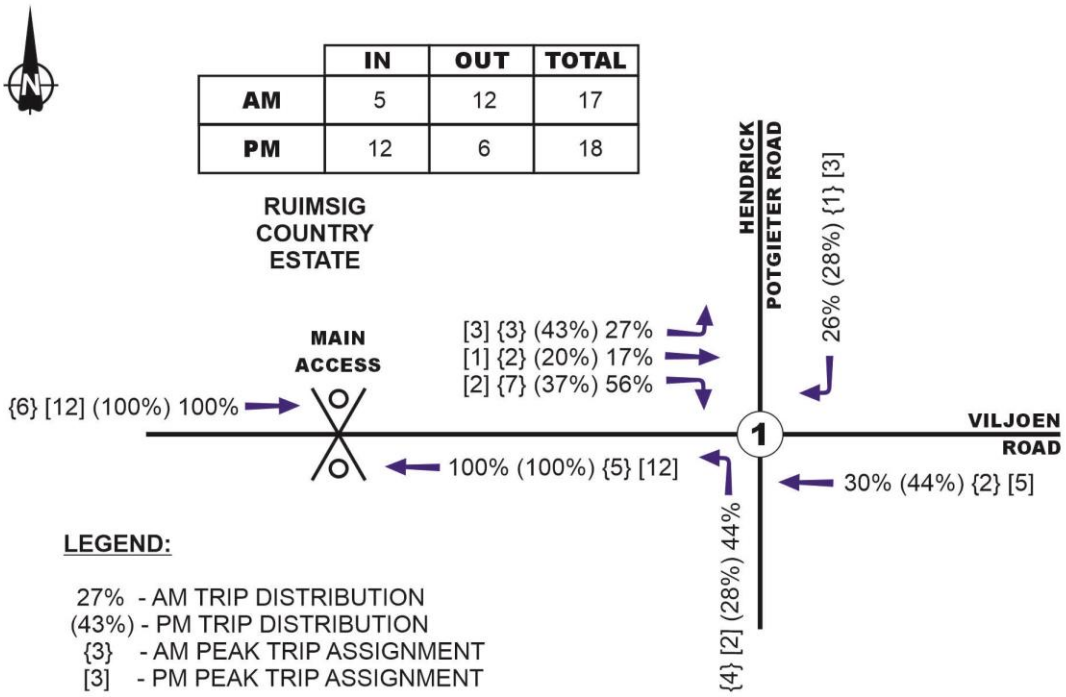
TRIP GENERATION CHARACTERISTICS - LATENT DEVELOPMENT - HOMES HAVEN X62

FIGURE 7

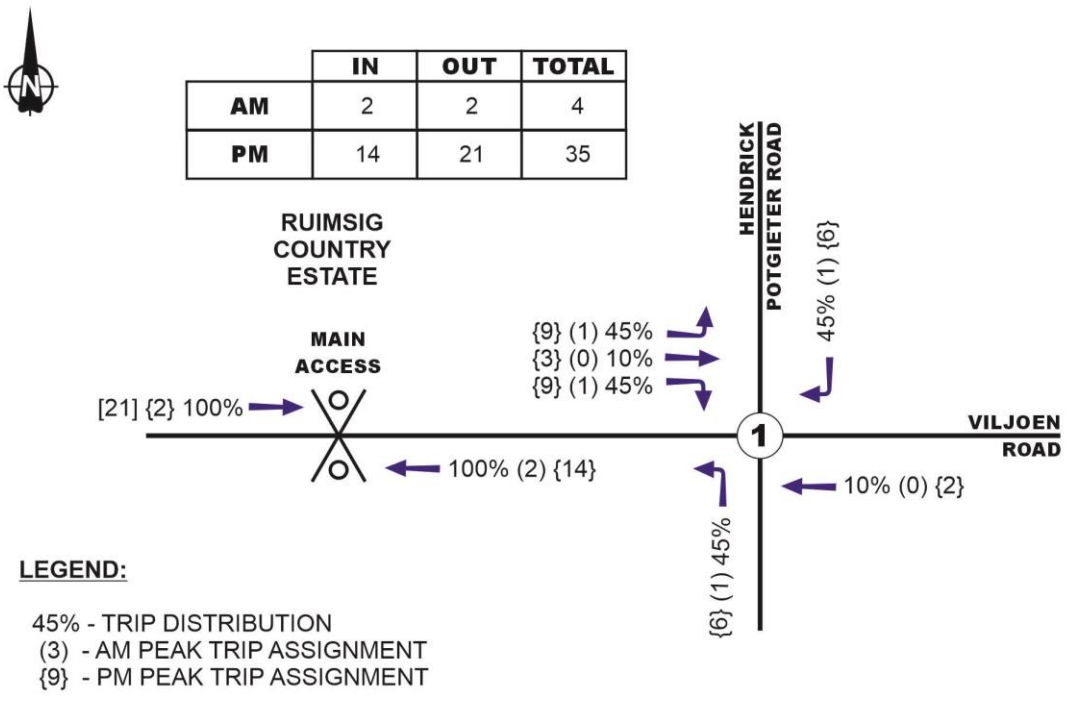


MARITENG CONSULTING ENGINEERS 11 Van Tonder St Verwoerd Park 1449 Tel: 087 821 7071 Fax: 086 547 8882 Cell: 082 854 7358	**PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65** **TOTAL TRIP ASSIGNMENT (VEH/HR) - LATENT DEVELOPMENT**	FIGURE **8**

	IN	OUT	TOTAL
AM	5	12	17
PM	12	6	18



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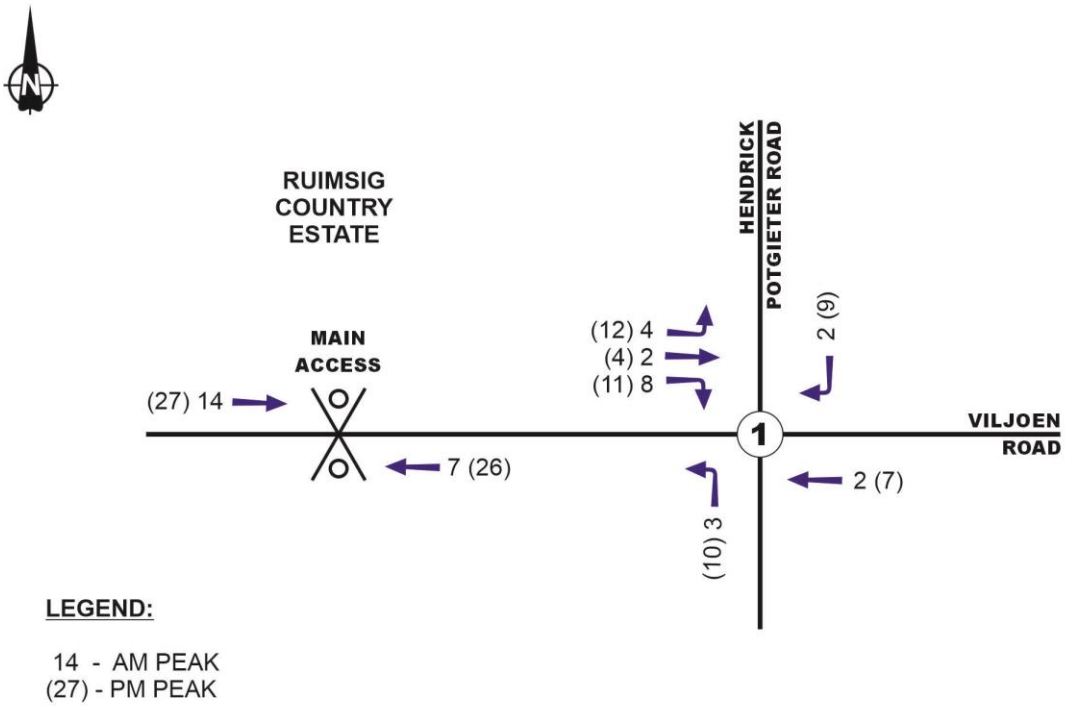


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11 Van Tonder St
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1449
Tel: 087 821 7071
Fax: 086 547 8882
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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

TRIP GENERATION CHARACTERISTICS - "SPECIAL" (RESTAURANT)

FIGURE 10

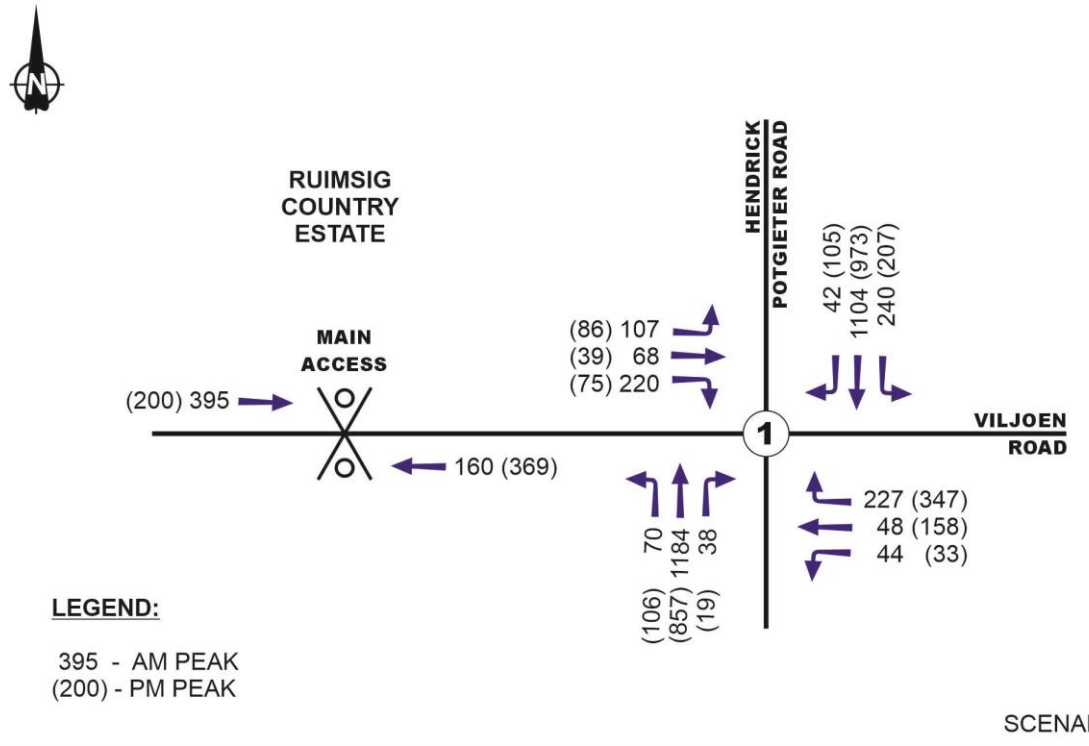


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Fax: 086 547 8882
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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

TOTAL TRIP ASSIGNMENT (VEH/HR) - PROPOSED DEVELOPMENT

FIGURE 11



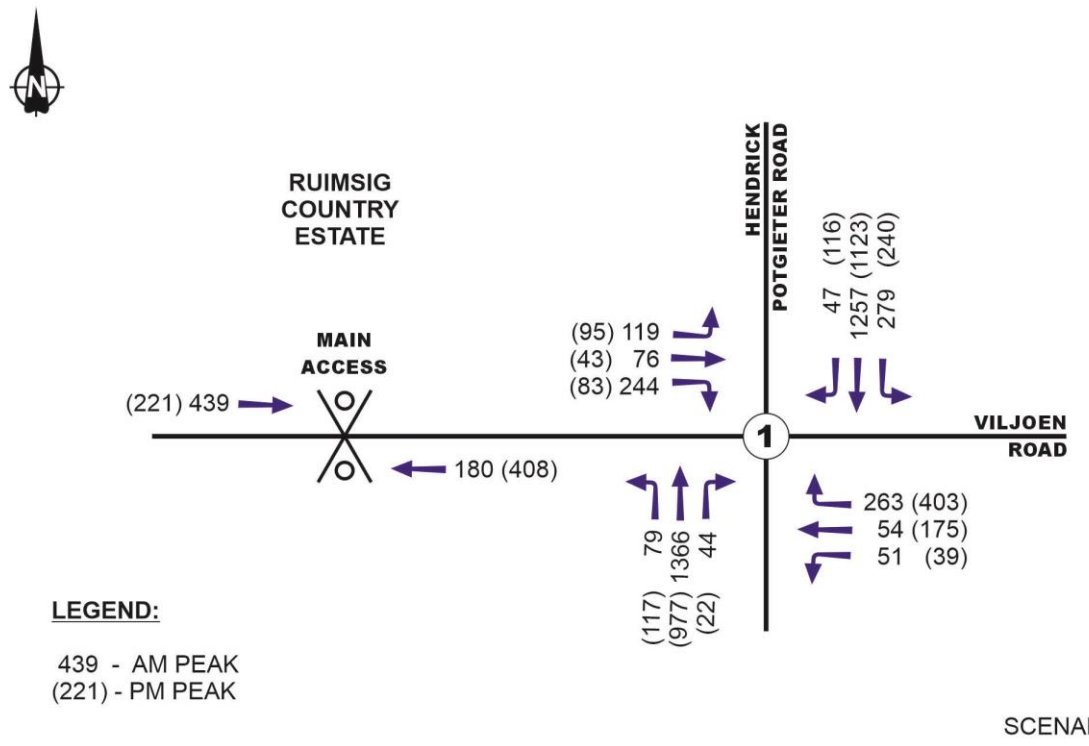
SCENARIOS 2 & 6

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Verwoerd Park
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Tel: 087 821 7071
Fax: 086 547 8882
Cell: 082 854 7358

PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

ESTIMATED (2024) WEEKDAY PEAK HOUR TRAFFIC VOLUMES - LATENT PLUS DEVELOPMENT TRAFFIC

FIGURE 12



SCENARIOS 4 & 8

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11 Van Tonder St
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Tel: 087 821 7071
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PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

ESTIMATED (2029) WEEKDAY PEAK HOUR TRAFFIC VOLUMES - LATENT PLUS DEVELOPMENT TRAFFIC

FIGURE 13

ANNEXURE A:

EXTRACT FROM APPROVED CONSENT USE APPLICATION (1999) AND ZONING CERTIFICATE

B

GAUTENG PROVINCIAL GOVERNMENT

DEVELOPMENT PLANNING AND LOCAL GOVERNMENT
UKUTHUTHUKA UKUHLELA NOHULUMENI BASEKHAYA

ENQUIRIES : Miss J Kruger
REFERENCE: DPLG 11/3/8/28/18
TEL . NO. : (011) 355 5080

MOSSIE MOSTERT
PO BOX 1732
KRUGERSDORP
1740

Sir

PROPOSED EXCISION: HOLDING 40 DISWILMAR AGRICULTURAL HOLDINGS

Your application dated 24 August 1999 refers.

I have to inform you that the Administrator has approved the application in terms of Section 6(1) of the Agricultural Holdings (Transvaal) Registration Act, 1919 (Act 22 of 1919).

As soon as the requirements of the Surveyor-General in the matter have been complied with, the certificate on the excision of the holding will be issued.

Contact person at the Surveyor-General regarding the requirements:
Miss D Dubbeld
Private Bag x 291
Pretoria
0001
Tel: (012) 323 7205 x 2269

Yours faithfully

HEAD OF DEPARTMENT
99/10/28

Corner of Commissioner & Sauer Streets, Johannesburg • Private Bag-X86, Marshalltown 2107
Tel: (011) 355-5000 • Fax: (011) 355-5401/2

B

The Surveyor-General
Private Bag X 291
PRETORIA
0001

Copy for your information.
Please inform me as soon as the requirements have been complied with.

HEAD OF DEPARTMENT
DATE: 99/10/28

Local Council of Krugersdorp
P.O. Box 94
Krugersdorp
1740

Sir

Your ref: TS1151/5(re 1ue)(TP1 SUB)

Copy for your information.

HEAD OF DEPARTMENT
DATE: 99/10/28

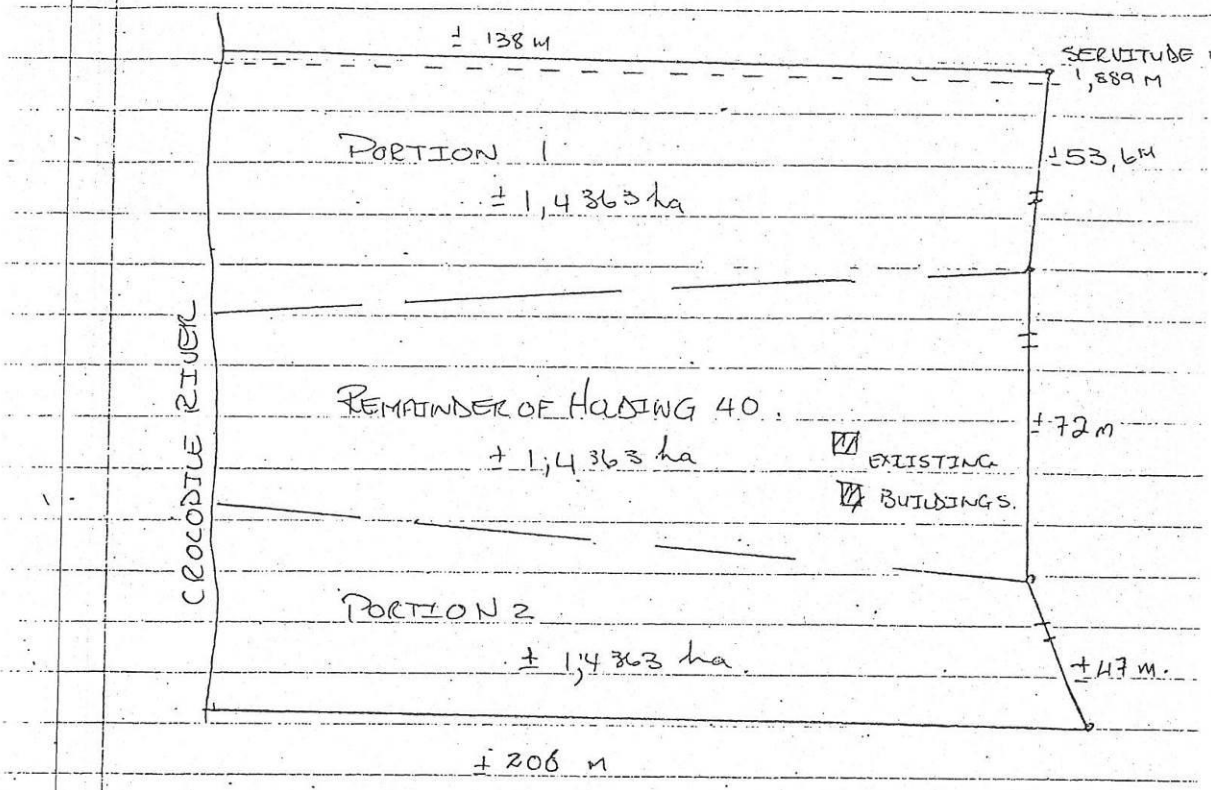
The Registrar of Deeds
Private Bag X 183
PRETORIA
0001

Copy for your information.

HEAD OF DEPARTMENT
DATE: 99/10/28

PROPOSED SUBDIVISION : HOLDING 40
DISWILMAR

TOTAL AREA : 4, 3089 ha



PLAN NO. 4/13/4/148(40)/1

B

Plaaslike Raad van • Local Council of

KRUGERSDORP

Fax : (011)
Tel : (011) 951-2000
Direk/Direct 951-2246

P O BOX 94
KRUGERSDORP
1740

Meld asb verwysing : Mrs S van Breda/wh
Please quote reference : TS/15/4/5(re/40)(TP/SvB)

13 August 1999

Mr M Mostert
P O Box 1732
KRUGERSDORP
1740

Sir

HEARING : APPLICATION FOR CONSENT USE : THE REMAINDER OF PORTION 40 DISWILMAR AGRICULTURAL HOLDINGS

Your application dated 20 August 1999 refers.

My Council at its meeting held on 28 July 1999 under item A(11) 7/99 resolved as follows:

"1. that it be noted that the objector Mr RSE Martin did not attend the hearing.

2. that the objection against the application for consent use on the Remainder of Holding 40 Diswilmar Agricultural Holdings not be upheld.

3. that the application from Mossie Mostert Town and Regional Planners for consent use on the Remainder of Holding 40 Diswilmar Agricultural Holdings be approved subject to the following conditions:

(a) the rights shall be limited to a restaurant with a maximum floor area of 200m² and a guest house with a maximum of 10 rooms;

HCS **(b) all municipal health by-laws shall strictly be adhered to;**

(c) all conditions imposed by the Gauteng Department of Agriculture, Conservation and Environment shall strictly be adhered to;

TCE **(d) the applicant shall connect to the municipal sewer line to dispose of all future sewerage**

(e) parking on the holding shall be provided to the satisfaction of the Council;

WM.

B

(f) the parking area shall be dust free and maintained to the satisfaction of the local authority;

TCE (g) essential services such as water, sewerage and refuse removal must be provided to the satisfaction of the Council, provided that the applicant shall connect to the municipal water line

TCE (h) the applicant shall be responsible for the upgrading of engineering services, if any and also the resulting costs;

TCE (i) the applicant must pay a contribution for the provision of bulk engineering services in the amount determined by the Council, within 60 days from the date of approval;

(j) the rights shall lapse if not exercised within a period of 2 years from the date of approval;

(k) the use shall lapse, should it not be in operation for a continuous period of 24 months;

(l) a site development plan drawn to a scale of 1:200 or any other scale as agreed upon, must be submitted for approval by the town planning section, prior to the approval of any building plans;

(m) should there not be adhered to all the aforementioned conditions or any regulations of the municipal by-laws or any other law, the Council reserves the right to withdraw this approval;

(n) should the property be subdivided, the approved rights shall be applicable to only one of the subdivided portions and shall not be divided or duplicated between the portions without the written consent of the Council;

(o) the applicant shall comply to an environment procedure, if necessary, as defined in terms of Regulation No. 1182, advertised on 5 September 1997 in accordance with Sections 21, 22 and 26 of the Environmental Conservation Act, Act 73 of 1989 and shall contact the Environmental Manager of the Council, in this regard;

3. An application for the excision of the Agricultural Holding shall be lodged within 60 days from the date of approval."

Yours faithfully

TOWN SECRETARY

Mogale City

Local Municipality

DEVELOPMENT PLANNING

ZONING CERTIFICATE

INFORMATION OF FARM PORTION

PROPERTY DESCRIPTION	Portion 243 of the farm Roodekrans 183 IQ

ZONING INFORMATION

TOWN PLANNING SCHEME	Mogale City Land Use Scheme, 2022 (MC LUS 2022)
ZONING	"**Agricultural**"
SIZE	1,5671 ha
LAND USES ALLOWED	Agricultural building, agricultural uses, commercial farm, conservation areas, cultivation shed, dwelling house, 2nd dwelling unit, farm stall, greenhouse
COVERAGE	10%
BUILDING LINE	10 metres or as indicated in Title Deed, or as determined by relevant roads authority. (Most restrictive will apply)
FLOOR AREA RATIO	As indicated in Clause 29 of the MC LUS, 2022
MAXIMUM HEIGHT	2 storeys (additional storey may be applied for with written consent)
PARKING REQUIREMENTS	All parking to be provided on site and dust free in compliance Clause 39 of the MC LUS, 2022
ADDITIONAL LAND USE RIGHTS APPROVED	Special Consent granted on 13 August 1999 for: A restaurant w maximum floor area of 200m² and a guesthouse with a maximu of 10 rooms.
OTHER	None

The Mogale City Land Use Scheme, 2022 was promulgated on 17 August 2022 and may be subject to rectification and / or amendments that may be promulgated from time to time. The municipality therefore retains the right to amend the information contained in this zoning certificate.

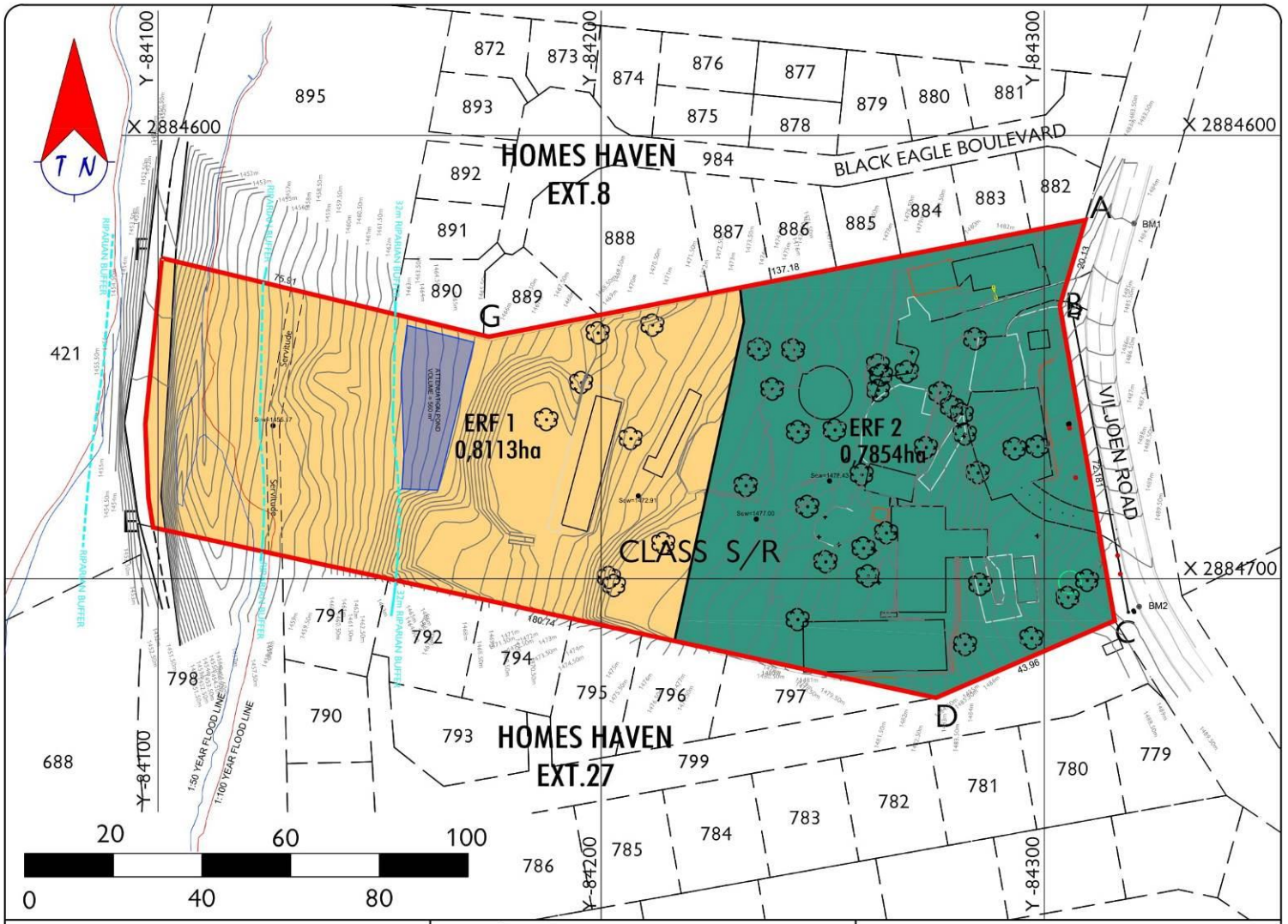
The above information is supplied with the specific understanding that the land in question will at all times be subject to further restrictions that may be imposed through the title deed of the property, conditions of establishment, relevant town planning schemes and any other applicable by-laws and legislation.

G TURNER
MANAGER: DEVELOPMENT PLANNING
ECONOMIC DEVELOPMENT SERVICES

MANAGER
DEVELOPMENT PLANNING
14 MAY 2024
APPROVED
Official Date Stamp

ANNEXURE A:

EXTRACT FROM TOWN PLANNING MEMORANDUM



NOTES:

 # BASE PLAN

BASE PLAN AND CONTOURS PROVIDED BY F.J LOOCK PROFESSIONAL LAND SURVEYOR

 # GEOTECH

GEOTECH AS COMPILED BY J. ARKERT ENGINEERING GEOLOGIST
REPORT No: 0624 DATE: JULY 2024

SITE CLASS S/R:
LESS THAN 10mm CONSOLIDATION SETTLEMENT ANTICIPATED AND SHALLOW BEDROCK

FLOOD LINE CERTIFICATE

IT IS HEREBY CERTIFIED THAT THE LINE SHOWN
1:100 YEAR FLOODLINE
1:50 YEAR FLOODLINE
REPESENT THE LEVELS LIKELY TO BE REACHED BY FLOODWATER ON AVERAGE ONCE IN 100 YEARS, DETERMINED IN ACCORDANCE WITH SECTION 144 OF THE NATIONAL WATER ACT (ACT 36 OF 1998)

2nd Sept 2024
R.D HIRST Pr Tech (Eng) 2018300110 DATE
FOR SIVEST (PTY) LTD

PROJECT

PROPOSED TOWNSHIP
HOMES HAVEN EXT.65
SITUATED ON PORTION 243 OF THE FARM ROODEKRANS 183 I.Q

MOGALE CITY LOCAL MUNICIPALITY

LOCALITY PLAN



LAND USE TABLE

LAND USE	NO. OF STAND	ERF NUMBER	AREA	%
RESIDENTIAL 2	1	ERF 1	0,8113	50,81
SPECIAL FOR RESTAURANT AND GUESTHOUSE	1	ERF 2	0,7854	49,19
TOTAL	2		1,5967ha	100%

FIGURE A - F REPRESENTS PROPOSED TOWNSHIP HOMES HAVEN EXT.65 SITUATED ON PORTION 243 OF THE FARM ROODEKRANS 183 I.Q

Co-ordinate System = WG27

CLIENT

RINGWOOD CC

DESIGNED	HT	APPROVED		SCALE 1:1000 (A3)
DRAWN	CST	DATE	SEPT. 2024	COPYRIGHT RESERVED

DRAWING No. C2422/1

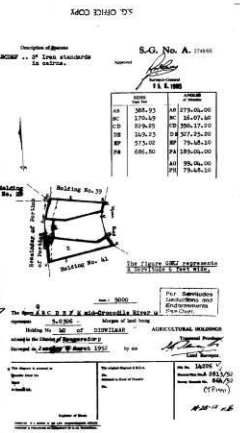
53 Conrad Street
Florida North
E-mail:
httrp@iafrica.com
Tel no:
(011)472-1613
Fax:(011)472-3454

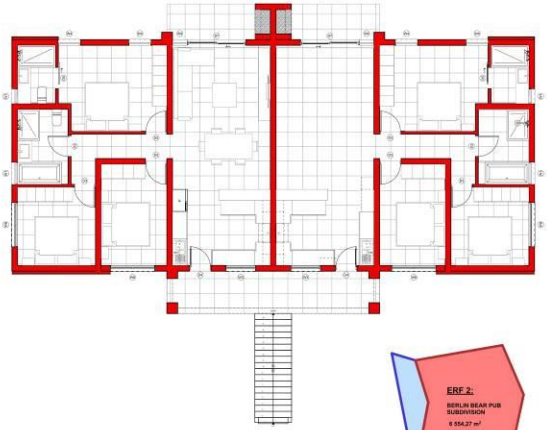
Hunter Theron Inc
TOWN PLANNERS

ANNEXURE C:

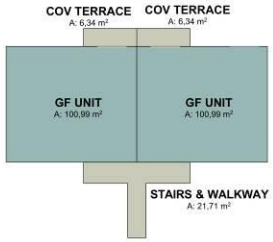
EXTRACT FRSITE DEVELOPMENT PLAN, PREPARED BY VAN RICK ARCHTECTES

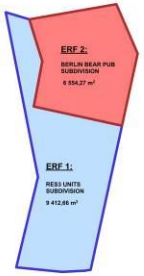






PROPOSED NEW UNITS (16 UNITS IN TOTAL - 4 BLOCKS)
SCALE 1:100





SUBDIVISION DIAGRAM
SCALE 1:2000



COVERAGE - ERF 1	
ZONE	AREA
GROUND FLOOR	
BLOCK 1	122,98
BLOCK 2	236,37
BLOCK 3	236,37
BLOCK 4	236,37
BLOCK 5	236,37
BLOCK 6	122,98
CARPORT	500,60
	1 691,44 m²

PARKING COUNT: ERF 1	
PARKING TYPE	QUANTITY
COVERED PARKING	40
LOADING BAY	2
OPEN PARKING	4
	46

COVERAGE - ERF 2	
ZONE	AREA
GROUND FLOOR	
AS-BUILT CARPORT A:	61,60
AS-BUILT GENERATOR HOUSE:	18,01
AS-BUILT HOUSE:	165,32
AS-BUILT RESTAURANT:	326,44
AS-BUILT SEATING AREA AND BAR:	348,13
	919,50 m²

VR - PARKING RESTAURANT	
PARKING TYPE	QUANTITY
GUESTHOUSE PARKING	4
LOADING BAY	2
RESTAURANT PARKING	65
	71

SCHEDULE OF RIGHTS
ERF: 1

PROPERTY DESCRIPTION

ERF/PORTION:	ERF 243 ROODEKRANS 183-iq	SITE AREA:	9412,66 (0,9412Ha)

ZONING INFORMATION:

TOWNPLANNING SCHEME:	MOGALE CITY	AMENDMENT SCHEME:	/
USE ZONE:	RESIDENTIAL 2	ANNEXURE NO:	

DEVELOPMENT CONTROL MEASURES

PERMISSIBLE	CONTROL	ACTUAL
3 STOREYS 3 STOREYS	HEIGHT ZONE HEIGHT OF BUILDINGS	2 STOREYS 2 STOREYS
	COVERAGE %	17,97%
	COVERAGE M² (FOOTPRINT)	1691,44
	FLOOR AREA RATIO	0,13
0	FLOOR AREA	1211,88
25HA	DENSITY	20/HA
24	NO DWELLINGS UNITS ON ERF	20

PARKING

TOTAL PARKING BAYS:	REQUIRED BAYS:	PROVIDED BAYS:
1 PARKING BAYS PER 2 BEDROOM UNIT:	20	40
1 OPEN PARKING PER 5 UNITS:	4	4
1 LOADING BAY PER 10 UNITS	2	2
TOTAL PARKING BAYS:	34	46
SURPLUS OF PARKING BAYS:	22	

SCHEDULE OF RIGHTS
ERF: 2

PROPERTY DESCRIPTION

ERF/PORTION:	ERF 243 ROODEKRANS 183-iq	SITE AREA:	8554,27 (0,85427Ha)

ZONING INFORMATION:

TOWNPLANNING SCHEME:	MOGALE CITY	AMENDMENT SCHEME:	/
USE ZONE:	SPECIAL " RESTAURANT & GUESTHOUSE"		

DEVELOPMENT CONTROL MEASURES

PERMISSIBLE	CONTROL	ACTUAL
2 STOREYS 2 STOREYS	HEIGHT ZONE HEIGHT OF BUILDINGS	2 STOREYS 2 STOREYS
	COVERAGE %	14,03%
	COVERAGE M² (FOOTPRINT)	919,5
	FLOOR AREA RATIO	0,20
	FLOOR AREA	1336,05
10 ROOMS	GUESTHOUSE	4 ROOMS
	NO DWELLINGS UNITS ON ERF	

PARKING

TOTAL PARKING BAYS:	REQUIRED BAYS:	PROVIDED BAYS:
RESTAURANT: 6 BAYS PER 100m²	60	65
GUESTHOUSE: 1 BAY PER ROOM	4	4
1 LOADING BAY FOR FIRST 2000m²	1	2
TOTAL PARKING BAYS:	64	71
SURPLUS OF PARKING BAYS:	7	



COUNCIL APPROVAL STAMP:

COPYRIGHT NOTE:

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GENERAL NOTES:

- THIS DRAWING FORMS PART OF A SET OF DRAWINGS AND SHOULD NOT BE READ INDEPENDENTLY. IT SHOULD BE READ IN CONJUNCTION WITH THE FOLLOWING PROFESSIONAL'S DRAWINGS:
  - STRUCTURAL ENGINEERS DRAWINGS
  - LAND SURVEYOR'S SETTING AND CONTOUR DRAWINGS
  - CONTRACTORS FINISHING SCHEDULE
  - GEOTECHNICAL ENGINEERS SOIL REPORT
  - IMPORTANT: THE LATEST REVISIONS ISSUED BY ARCHITECT SHOULD BE READ IN CONJUNCTION WITH INITIAL SET OF CONTRACT DRAWINGS AND PREVIOUS REVISIONS. (SEE REVISION SCHEDULE)

NO WORK TO COMMENCE UNTIL MUNICIPALITY DRAWINGS HAVE BEEN APPROVED BY LOCAL AUTHORITY.

ALL WORK TO BE IN ACCORDANCE WITH THE NATIONAL BUILDING REGULATIONS AND THE SATISFACTION OF ALL LOCAL AUTHORITIES.

ALL MATERIALS TO BE SANS APPROVED. (OR AGREEMENT CERTIFICATE TO BE AVAILABLE)

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE LATEST REVISION IS USED FOR CONSTRUCTION.

CONTRACTOR TO COORDINATE ALL DIMENSIONS (LEVELS/BUILDING LINES/ SERVITUDES/POSITIONS OF ELECTRICAL BOXES AND STREET LAMPS) AND TO ENSURE THAT NO ENCROACHMENTS OCCUR.

FINISHES AND SPECIFICATIONS TO BE CHECKED AND COORDINATED BY THE CONTRACTOR BEFORE ANY ITEMS ARE ORDERED OR MANUFACTURED.

IF ANY DISCREPANCIES ARE FOUND THEN THE ARCHITECT SHOULD BE NOTIFIED IMMEDIATE SO THAT HE MAY CLARIFY IT.

THE SETTING OUT OF THE STRUCTURE REMAINS THE CONTRACTOR'S ENTIRE RESPONSIBILITY.

ALL SERVICES TO BE COORDINATED BY THE CONTRACTOR BEFORE WORK COMMENCES

THE CONTRACTOR AND ENGINEER TO COORDINATE ALL CUT AND FILL FLOOR LEVELS BEFORE WORK COMMENCES AND TO ENSURE ALL FREE FLOW OF ALL STORMWATER AWAY FROM BUILDING AND TO ENABLE EASY ACCESS INTO GARAGE RELATIVE TO ROAD
LEVEL AND ROAD LEVEL TO GARAGE DOOR HEAD HEIGHT.

MAXIMUM SLOPE OF RAMP TO GARAGE NOT TO EXCEED 1:25 RATIO.

WE WILL NOT BE HELD RESPONSIBLE FOR ANY DISCREPANCIES ARISING FROM THE FOLLOWING:

- INCORRECT SG DIAGRAMS ISSUED TO US;
- INCORRECT TOWN PLANNING INFORMATION;
- INCORRECT CONTOUR PLANS;
- INCORRECT SPECIFICATIONS FROM ENGINEER OR ANY OTHER PROFESSIONAL ASSIGNED BY THE OWNER/EMPLOYER.

NO MUNICIPALITY DRAWINGS/CONTRACT DRAWINGS WILL BE RELEASED WITHOUT THE SIGNATURE OF THE FOLLOWING BODIES:

- OWNER OF STAND;
- ENGINEER;
- ESTATE APPROVAL (WHERE APPLICABLE);
- ARCHITECTURAL TECHNOLOGIST

FOR ALL FINISHING NOTES REFER TO FINISHING CONTRACT WITH DEVELOPER. THIS CONTRACT SUPERCEDES INFORMATION ON THIS DRAWING AND ALL IT'S REVISIONS.

ARCHITECTURAL TECHNOLOGIST SIGNATURES:

ALWAYS REFER AND CROSS REFERENCE TO CLIENT/TECHNOLOGIST AGREEMENT.

DIVAN VERMEULEN
PROFESSIONAL ARCHITECTURAL TECHNOLOGIST
SACAP NO: 71592
SAIAT NO: 71349

SIGNATURE — VOLUNTARY ASSOCIATION

OWNER'S SIGNATURE:

I HEREBY APPROVE THIS DRAWING FOR THE DESIGN CONTAINED HEREIN AND FOR SUBMISSION TO THE LOCAL AUTHORITY FOR THEIR APPROVAL. I ADHERE TO THE CONTENT AND CLAUSES STATED IN THE CLIENT ARCHITECTURAL PROFESSIONAL AGREEMENT AS STATED ON WWW.VANRICK.CO.ZA. I APPROVE ALL DIMENSIONS AND DESIGN AND WILL APPOINT A CONTRACTOR THAT CAN ERECT THE STRUCTURE WITH DUE DILIGENCE.

OWNER'S SIGNATURE/AUTHORIZED REPRESENTATIVE — DATE

MRS JENNY DE VILLIERS
+27833773941
hugo@vitamina.co.za

ENGINEER'S SIGNATURE:

I ACCEPT MY APPOINTMENT AS ENGINEER ON THIS PROJECT AND WILL ISSUE ENGINEER DRAWINGS TO THE CLIENT TO BE READ IN CONJUNCTION WITH COUNCIL DRAWINGS AND ALL REVISIONS ISSUED. I WILL EXECUTE MY WORK WITH DUE DILIGENCE.

ENGINEERS STAMP AND SIGNATURE — DATE

DRAWING/PROJECT DETAILS:

PROJECT NUMBER:	THE BERLIN BEAR
STAND NUMBER:	PROPOSED ADDITIONAL ALTERATION PTN 243 ROODEKRANS 183-iq RUIMSIG COUNTRY ESTATE
SCALE:	AS INDICATED ON DRAWINGS
SHEET NO:	1
DRAWN BY:	MR DIVAN VERMEULEN
DATE ISSUED:	Tuesday, 17 September 2024 @ 23:31
PRINTING SPEC:	A1 LANDSCAPE (A1 ISO)

DRAWING TYPE:

SEAT COUNT

VANRICK
ARCHITECTURE
PROFESSIONAL ARCHITECTURAL TECHNOLOGISTS
CK: 2007/166742/23

CONTACT DETAILS:
MOBILE: 082 210 7229
STUDIO: 011 764 1990
FAX: 086 624 1719
E-MAIL: DIVAN@VANRICK.CO.ZA
WEBSITE: WWW.VANRICK.CO.ZA

PORTFOLIO:

ANNEXURE D:

LATENT DEVELOPMENT –
THE VILLAGE EXTENSIONS 23 TO 26

EXECUTIVE SUMMARY

This report contains a Traffic Impact Assessment undertaken for the following development:

- ✓ The proposed Townships The Village Extensions 23 to 26, to be established on a Portion of the Remainder of Portion 2, a Portion of Remainder of Portion 4, Portion of Portion 36, 37 and Portion 38 of the Farm Van Wyks Restant No. 182-I.O.

- ✓ The site is located along Furrow Road Extension falls under the jurisdiction of the Mogale City.

NOTE: This traffic report forms part of the town planning process to change the existing "amendment scheme", namely Erven 1 to 643 The Village Extension 23 to a four (4) phased development to be known as The Village Extension 23 (Erven to 279), Extension 24 (Erven 1 to 210), Extension 25 (Erven 1 to 150) and Extension 26 (Erven 1 & 2). This traffic report therefore supersedes previous reports submitted for the said land parcel.

The development controls are as follows:

f) The Village Extension 23 (Phase 1)

- ✓ Zoning : "Res 1"

- ✓ Development potential = 274 erven

g) The Village Extension 24 (Phase 2)

- ✓ Zoning : "Res 1"

- ✓ Development potential = 206 erven

h) The Village Extension 25 (Phase 3)

- ✓ Zoning : "Res 1"

- ✓ Development potential = 144 erven

i) The Village Extension 26 (Phase 4)

- ✓ Zoning : "Res 4"

- ✓ Development potential = 200 dwelling units (density @120 dwelling units/ha).

Trip generation summary

The trip generation for the respective developments are summarised as follows:

- ✓ The Village Extension 23 (Phase 1) – 140 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

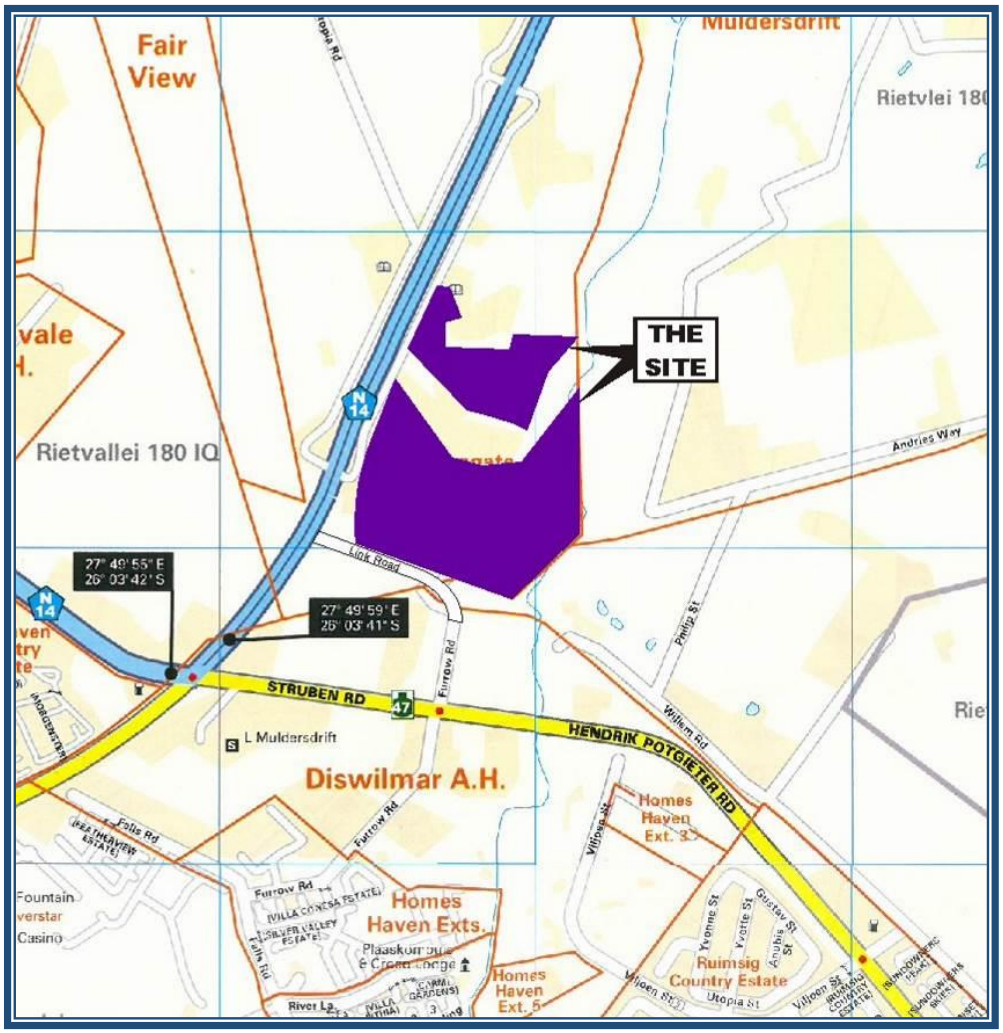
- ✓ The Village Extension 24 (Phase 2) – 106 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

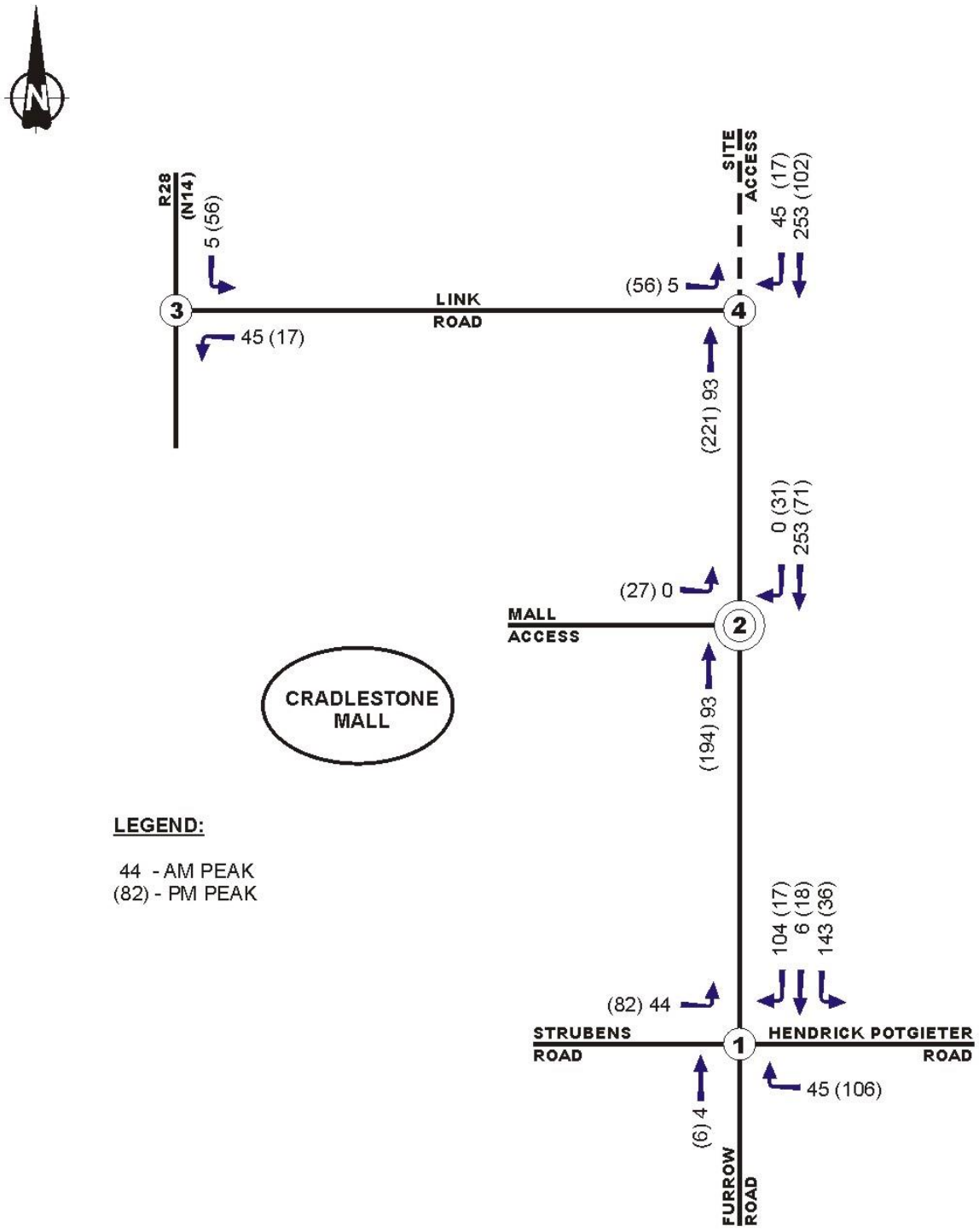
- ✓ The Village Extension 25 (Phase 3) – 73 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

- ✓ The Village Extension 26 (Phase 4) – 77 additional trips, during the weekday morning & weekday afternoon peak hours respectively.

Access summary

The respective townships will gain access from the extension of Furrow Road that will traverse the applicant site.


Fair View
Muldersdrift
Rietvlei 180
THE SITE
Rietvallei 180 IQ
Andries Way
Link Road
27° 49' 55" E
26° 03' 42" S
27° 49' 59" E
26° 03' 41" S
N 14
STRUBEN RD
47
HENDRIK POTGIETER RD
Furrow Rd
Willem Rd
Philip St
L Muldersdrift
Diswilmar A.H.
Homes Haven Ext. 3
Homes Haven Exts.
Homes Haven Ext. 5
Ruimsig Country Estate
Utopia St
Yvonne St
Anubis St
Fountain
Casino
River La



MARITENG
CONSULTING ENGINEERS
P.O. Box 8864
Verwoerd Park
1453
Tel: 087 821 7071
Fax: 086 547 8882
Cell: 082 854 7358

PROPOSED TOWNSHIPS THE VILLAGE EXTENSIONS 23 TO 26

TOTAL TRIP ASSIGNMENT(VEH/HR) - THE VILLAGE EXTENSIONS 23 TO 26

FIGURE

10

ANNEXURE E:

LATENT DEVELOPMENT –
THE VILLAGE EXTENSIONS 23 TO 26

MOGALE CITY LOCAL MUNICIPALITY

PROPOSED TOWNSHIP

HOMES HAVEN EXTENSION 62
(Revision 0)



TRAFFIC IMPACT ASSESSMENT
DECEMBER 2022

MARITENG
CONSULTING ENGINEERS

PREPARED FOR:

VTC Africa Investments (Pty) Ltd

PREPARED BY:

Mariteng Consulting Engineers
P.O. Box 8864
VERWOERD PARK
1453

Cell: 082 854 7358
Email: louis@mariteng.co.za

EXECUTIVE SUMMARY

This report contains a Traffic Impact Assessment undertaken for the following:

- ✓ Proposed township Homes Haven Extension 62, to be established on Portions 1 and 2 and the Remainder of Holding 43 Diswilmar A.H.
- ✓ The property is situated along Viljoen Road and within the security-controlled area of Ruimsig Country Estate and falls in the jurisdiction of Mogale City.

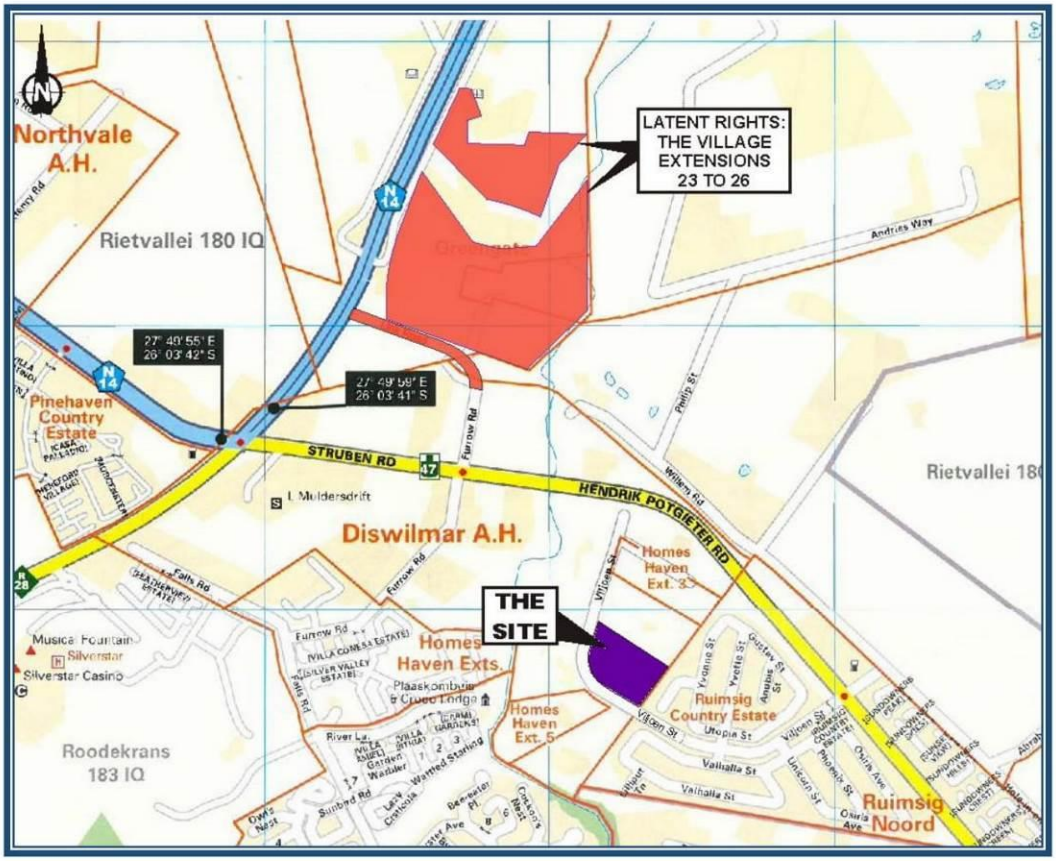
The land use controls are summarised as follows:

- ✓ Zoning : "Res 3"
- ✓ Density : 40 units/ha

The development potential is limited to 171 dwelling units.

The proposed development will generate approximately 145 and 146 trips, during the weekday morning and weekday afternoon peak hours.

Access to the applicant site is from Viljoen Road.



15. CONCLUSIONS AND RECOMMENDATIONS

15.1 CONCLUSIONS

The findings of the report are summarised as follows:

i. The report is in support of the proposed township and the land uses are discussed under the ***"Recommendations"***.

ii. **Latent development:** As part of this study the impact of The Village Extensions 23 to 26 was evaluated as part of this assessment.

iii. **Gauteng Infrastructure Act:** The applicant site is not affected by any existing or future provincial roads.

iv. **Development trips:** The proposed development will generate approximately 145 and 146 additional trips, during the weekday morning and weekday afternoon peak hours respectively.

v. **Proposed road network upgrade – background traffic**: No external road upgrade required.

vi. **Proposed road network upgrade – development traffic**: No external road upgrade required. However, the upgrade of the traffic signal settings at the Hendrik Potgieter Road/Viljoen Road intersection is required. Refer to details under the **"Recommendations"**.

vii. **Access arrangements:** At present no site development plan is available and certain access arrangements were assumed as part of this report. The details are discussed under the ***"Recommendations"***.

viii. **Public transport assessments:** The area is well-served by public transport service providers throughout the days and no additional facilities are required.

ix. **Non-motorized public transport assessments:** No additional facilities required, unless otherwise requested by Mogale City.

x. **Mogale Road Master Plan:** The applicant site acknowledges the existing road master plan.

15.2 RECOMMENDATIONS

Based on the traffic impact assessment, it is recommended that the proposed township Homes Haven Extension 62, to be established on Portions 1 and 2 and the Remainder of Holding 43 Diswilmar A.H., be approved for:

- ✓ Zoning : "Res 3" with a maximum of 171 dwelling units.

The approval is subject to the following:

i. Implementing the following access arrangements (refer to **Mariteng Plan No.: 192-01-01**):

- ✓ Access from Viljoen Road.
- ✓ Two inbound lanes with a minimum width of 3.0m each.

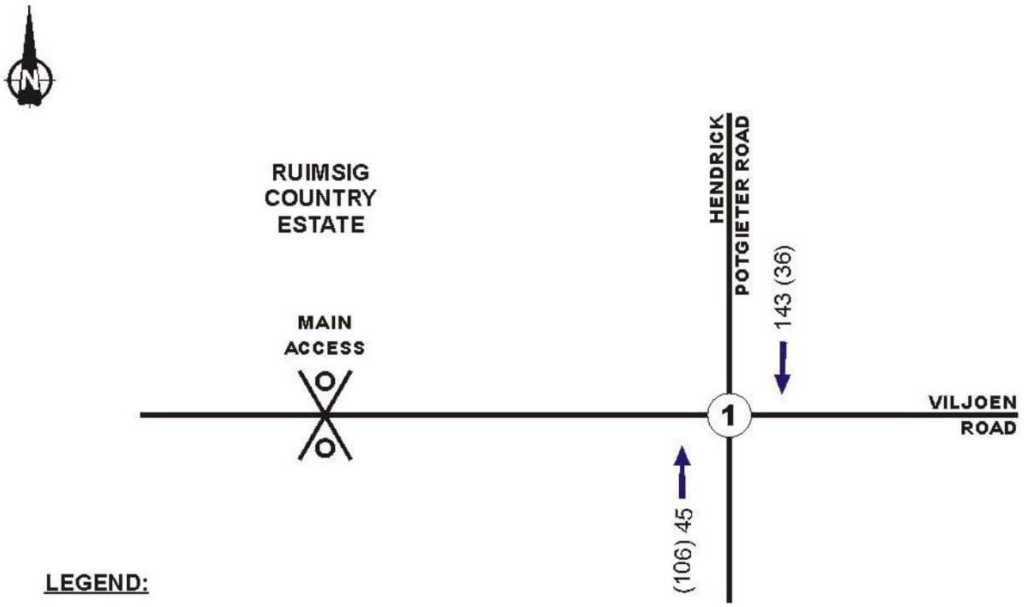
  NOTE: In the event the inbound lanes are at a later stage separated by means of a raised median island, then one lane to have a minimum lane width of 4.5m.
- ✓ One outbound lane with a minimum width of 4.5m.
- ✓ A minimum throat length of 5.0m. Distance measured from property boundary to the centre of the access control system.
- ✓ No vertical structures are currently proposed at the site access. However, should the need arise during the detail planning phase then provision should be made for a minimum vertical clearance of 5.1m.
- ✓ Access bellmouth on local authority road to have a minimum radius of 8.0m.

NOTE: The proposed access arrangements are based on the assumption that the erven will be consolidated once the township is approved.

ii. The developer to upgrade the signal settings for the Hendrik Potgieter Road & Viljoen Road intersection.

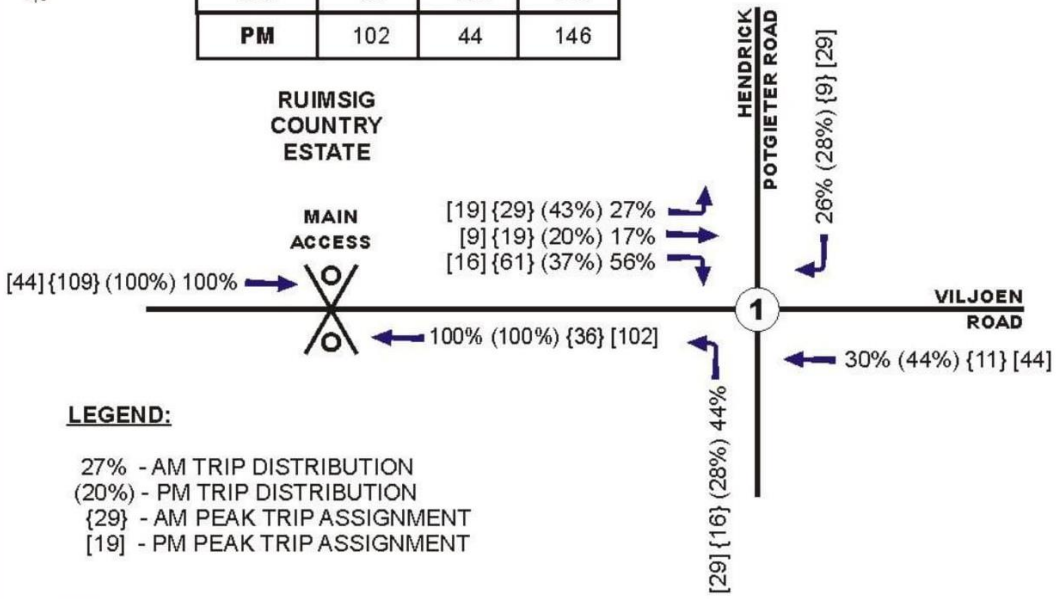
iii. A site traffic assessment to be prepared prior to the approval of the site development plan. The report to address on-site circulation, parking requirements, etc.

iv. The findings of this report are valid for 5 years.



MARITENG CONSULTING ENGINEERS P.O. Box 8864, Verwoerd Park, 1453 Tel: 087 821 7071 Fax: 086 547 8882 Cell: 082 854 7358	PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 62 **TRIP ASSIGNMENT (VEH/HR) - LATENT DEVELOPMENT**	FIGURE 6

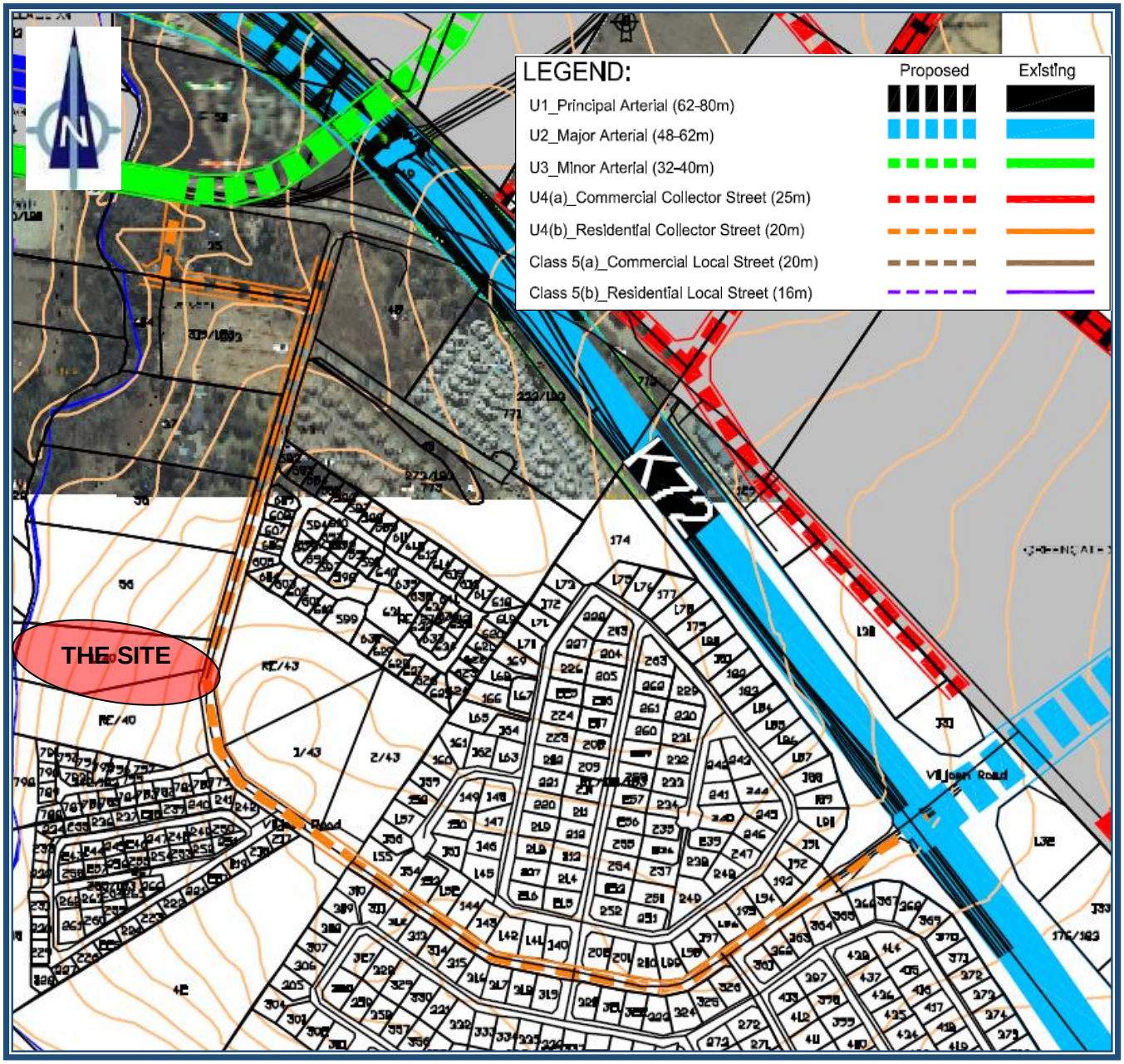
	IN	OUT	TOTAL
AM	36	109	145
PM	102	44	146



MARITENG CONSULTING ENGINEERS P.O. Box 8864, Verwoerd Park, 1453 Tel: 087 821 7071 Fax: 086 547 8882 Cell: 082 854 7358	PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 62 **TRIP GENERATION CHARACTERISTICS - PROPOSED DEVELOPMENT**	FIGURE 7

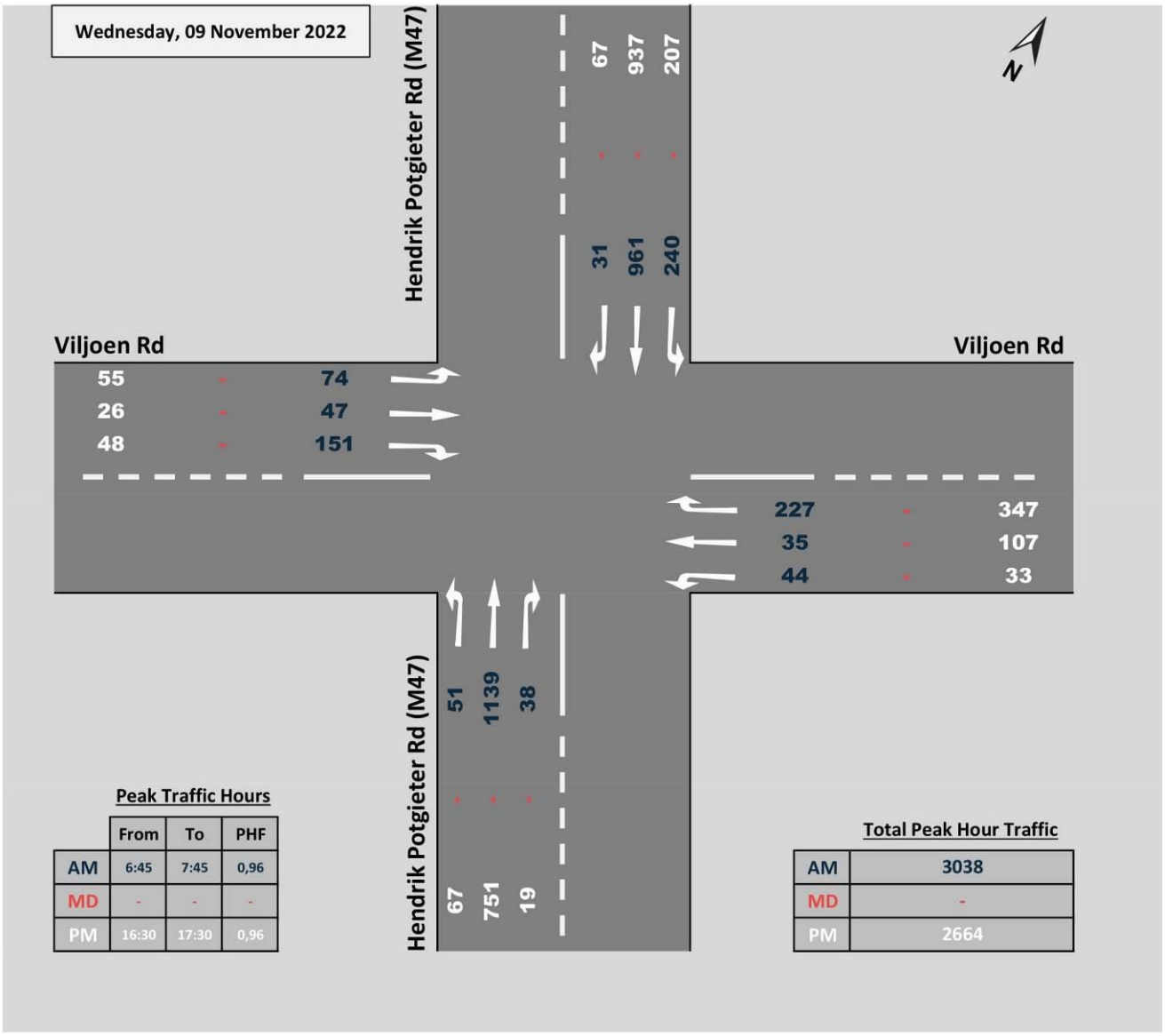
ANNEXURE F:

EXTRACT FROM MOGALE CITY INFRASTRUCTURE DEVELOPMENT PLAN (NORTHERN AREAS)


LEGEND:
Proposed
Existing
U1_Principal Arterial (62-80m)
U2_Major Arterial (48-62m)
U3_Minor Arterial (32-40m)
U4(a)_Commercial Collector Street (25m)
U4(b)_Residential Collector Street (20m)
Class 5(a)_Commercial Local Street (20m)
Class 5(b)_Residential Local Street (16m)
THE SITE
K12
Vilioen Road

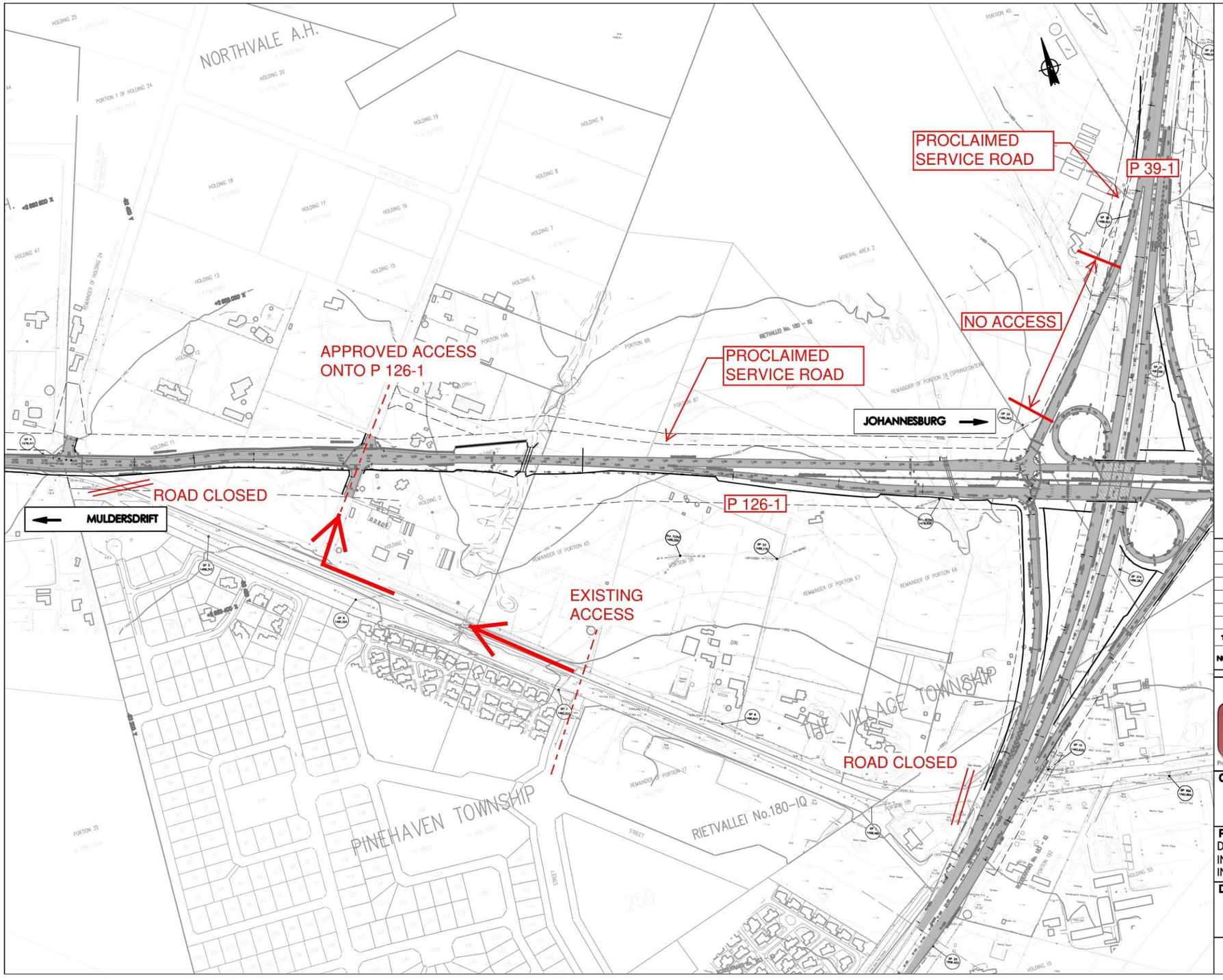
ANNEXURE G:

DETAILED TRAFFIC COUNTS


Wednesday, 09 November 2022
Hendrik Potgieter Rd (M47)
67
937
207
31
961
240
Viljoen Rd
Viljoen Rd
55 - 74
26 - 47
48 - 151
227 - 347
35 - 107
44 - 33
Hendrik Potgieter Rd (M47)
51
1139
38
67
751
19
Peak Traffic Hours
From To PHF
AM 6:45 7:45 0,96
MD - - -
PM 16:30 17:30 0,96
Total Peak Hour Traffic
AM 3038
MD -
PM 2664

ANNEXURE H:

FUTURE ALIGNMENT ROAD K72 & PINEHAVEN INTERCGHANGE, PREPARED BY DEC FOR GPDRT



INFORMATION ONLY

NO.	DATE	REVISION	DRAWN
1	04/08	FOR INFORMATION	M.C.VALASHIYA

dec Development & Engineering Consultants (Pty) Ltd
Project Managers & Consulting Engineers

P.O. Box 319
Parklands
2121
28 Bolton Road
Rosebank

Fax : (011) 880-7079
Tel : (011) 530-6700
e-mail : dec@dec.co.za

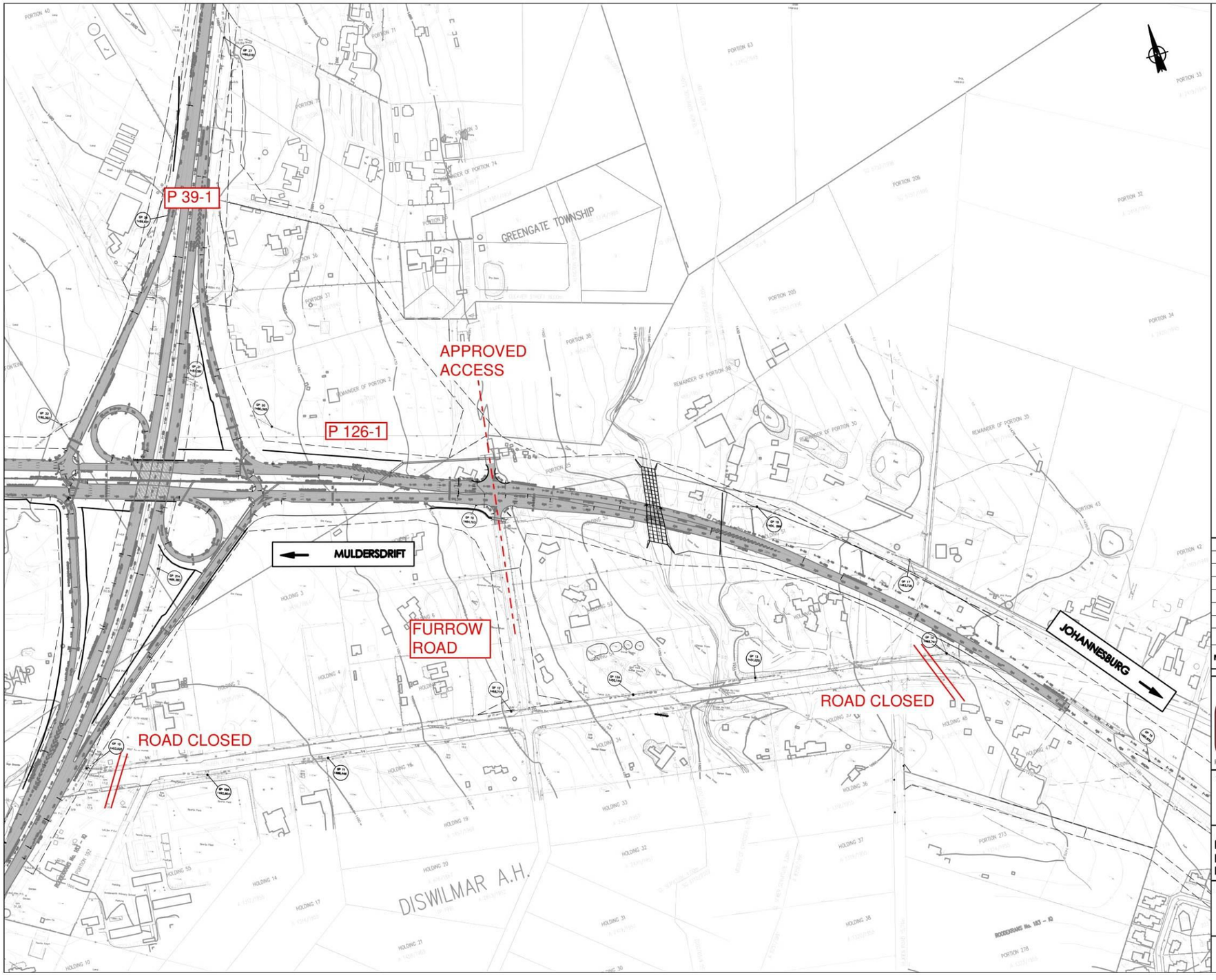
CLIENT: DEPARTMENT OF PUBLIC TRANSPORT,ROADS AND WORKS: TRANSPORT INFRASTRUCTURE

PROJECT:
DETAIL DESIGN OF ROAD K72, INCLUDING THE P126-1/P39-1 INTERCHANGE

DRAWING TITLE:

FIG 1

SCALE 1:5000



INFORMATION ONLY

NO.	DATE	REVISION	DRAWN
1	04/08	FOR INFORMATION	M.C.VALASHIYA

dec Development & Engineering Consultants (Pty) ltd
Project Managers & Consulting Engineers
P.O. Box 319
Parklands
2121
28 Bolton Road
Rosebank
Fax : (011) 880-7079
Tel : (011) 530-9700
e-mail : dec@dec@ib.co.za

CLIENT: DEPARTMENT OF PUBLIC TRANSPORT,ROADS AND WORKS: TRANSPORT INFRASTRUCTURE

PROJECT:
DETAIL DESIGN OF ROAD K72, INCLUDING THE P126-1/P39-1 INTERCHANGE

DRAWING TITLE:

FIG 2

SCALE 1:5000

ANNEXURE I:

TRIP GENERATION CHARACTERISTICS

Proposed Township Homes Haven Extension 65

Multi-Level Townhouses - COTO 232

Mariteng Project: 194/39

Date: 1 October 2024

Trip Generation Calculations

Description	Erf No.	Land Use	Dev Area (m²)	Residential Type	Density (units/ha	Height (No. Storeys)	Dwelling Units (No.)	Trip Rate/Unit				No. of Trips				Trip Reduction (No. of Trips)			
								AM	PM	SAT	SUN	AM	PM	SAT	SUN	AM	PM	SAT	SUN
Res 2	1	Dwelling units	-	-	-	2	20	0,75	0,75	0,4	0,4	15	15	8	8	0	0	0	0
Total			**0,00**	-		-	**20**	-	-	-	-	**15**	**15**	**8**	**8**	**0**	**0**	**0**	**0**

Trip reduction factor	**Multi Level Townhouses**	
	Factors (%)	Factors Use for Pc
Mixed use dev (Pm)	15%	0%
Low vehicle ownership (Pv)	30%	0%
Very low vehicle ownership (Pv)	50%	0%
Transit nodes or Corridors (Pt)	15%	0%
Total reduction factor	-	**0,00%**

	Final No. of Trips				Directional Split							
					AM		PM		SAT		SUN	
	AM	PM	SAT	SUN	IN	OUT	IN	OUT	IN	OUT	IN	OUT
					25%	75%	70%	30%	50%	50%	50%	50%
Erf 1 & 2	15	15	8	8	4	11	11	5	4	4	4	4
TOTAL	**15**	**15**	**8**	**8**	**4**	**11**	**11**	**5**	**4**	**4**	**4**	**4**
						15		**15**		**8**		**8**

Proposed Township Homes Haven Extension 65

Guest House - COTO 350

Mariteng Project: 194/39

Date: 1 October 2024

Trip Generation Calculations

Description	Erf No.	Land Use	Dev Area m²	FAR	Height (No. Storeys)	No. of rooms	Trip Rate/Unit					No. of Trips					Trip Reduction (No. of Trips)				
							AM	PM	M/DAY	SAT	SUN	AM	PM	M/DAY	SAT	SUN	AM	PM	M/DAY	SAT	SUN
Res 2	1	Guest House	-	-	2	4	0,45	0,45	0	0,25	0,25	2	2	0	1	1	0	0	0	0	0
TOTAL			-	-	-	**4**	-	-	-	-	-	**2**	**2**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**

Trip reduction factor	Factors (%)	Factors Use for Pc
Mixed use development (Pm)	20%	0%
Low vehicle ownership (Pv)	30%	0%
Very low vehicle ownership (Pv)	50%	0%
Transit nodes or Corridors (Pt)	15%	0%
Total reduction factor	-	**0,00%**

Final No. of Trips																			
AM	PM	M/DAY	SAT	SUN	AM		PM		MIDDAY		SAT		SUN						
					IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT					
					50%	50%	50%	50%	50%	50%	50%	50%	50%	50%					
2	2	0	1	1	1	1	1	1	0	0	1	1	1	1					
2	**2**	**0**	**1**	**1**	**1**	**1**	**1**	**1**	**0**	**0**	**1**	**1**	**1**	**1**					
					-	2	-	2	-	0	-	1	-	1					

Combined factor: Pc = 1- (1-Pm)*(1-Pv)*(1-Pt)

Proposed Township Homes Haven Extension 65

Restaurant , Quality (Sit-down) (COTO 931)

Mariteng Project: 194/39

Date: 1 October 2024

Trip Generation Calculations

Description	Erf No.	Land Use	Dev Area (m²)	FAR	Height (No. Storeys)	GLA (m²)	Trip Rate/Unit					No. of Trips					Trip Reduction (No. of Trips)					No. of Trips				
							AM	PM	M/DAY	Even	SAT	AM	PM	M/DAY	Even	SAT	AM	PM	M/DAY	Even	SAT	AM	PM	M/DAY	Even	SAT
Special	2	Restaurant	-	-	2	475	0,75	11,8	9,8	9	11	4	56	47	43	52	0	0	0	0	0	4	56	47	43	52
		Sub Total	**0**	**-**	**-**	**475**	**-**	**-**	**-**	**-**	**-**	**4**	**56**	**47**	**43**	**52**	**0**	**0**	**0**	**0**	**0**	**4**	**56**	**47**	**43**	**52**

Trip reduction factor	Factors (%)	Factors Use for Pc
Mixed use development (Pm)	10%	0%
Low vehicle ownership (Pv)	10%	0%
Very low vehicle ownership (Pv)	15%	0%
Transit nodes or Corridors (Pt)	15%	0%
Total reduction factor	-	**0,00%**

Combined factor: Pc = 1- (1-Pm)*(1-Pv)*(1-Pt)

Pass-by Trips					Final No. of Trips					Directional Split									
AM	PM	M/DAY	Even	SAT	AM	PM	M/DAY	Even	SAT	AM		PM		MIDDAY		EVE		SAT	
										IN	OUT	IN	OUT	IN	OUT	IN	OUT	IN	OUT
0%	39%	0%	0%	0%						70%	30%	40%	60%	60%	40%	60%	40%	60%	40%
0	22	0	0	0	4	34	47	43	52	**2**	**1**	**14**	**21**	**28**	**19**	**26**	**17**	**31**	**21**
											4		**34**		**47**		**43**		**52**

ANNEXURE J:

DETAILED CAPACITY ANALYSIS RESULTS

AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC1 & SC5 - 2024 Background traffic

&AutoJ1810 mariteng

4nswe — **4 stage signal, north-south lag flash, west-east lag flash**

Volume (evu/hr)

	from North					from South					from West					from East					intersection	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R		total
AM		240	961	31	**1 232**		51	1 139	38	**1 228**		74	47	151	**272**		44	35	227	**306**		**3 038**
off																						
PM		207	937	67	**1 211**		67	751	19	**837**		55	26	48	**129**		33	107	347	**487**		**2 664**

Lanes

(if lanes shared L:S or S:R = 0.5:0.5; L:S:R = 0.3:0.4:0.3)

	from North				from South				from West				from East			
	L~	L	S	R	L~	L	S	R	L~	L	S	R	L~	L	S	R
# lanes		0,5	1,5	1,0		0,5	1,5	1,0		0,5	0,5	1,0		0,5	0,5	1,0

Green / Cycle ratio

	g/c from North					g/c from South					g/c from West					g/c from East				
	peds	left	thru	rt gaps	rt flash	peds	left	thru	rt gaps	rt flash	peds	left	thru	rt gaps	rt flash	peds	left	thru	rt gaps	rt flash
AM	*0,40*	0,48	0,48	0,48	0,07	*0,40*	0,48	0,48	0,48	0,07	*0,05*	0,16	0,16	0,16	0,07	*0,05*	0,16	0,16	0,16	0,07
off	*0,08*	0,18	0,18	0,18	0,09	*0,08*	0,18	0,18	0,18	0,09	*0,20*	0,35	0,35	0,35	0,09	*0,20*	0,35	0,35	0,35	0,09
PM	*0,40*	0,48	0,48	0,48	0,07	*0,40*	0,48	0,48	0,48	0,07	*0,05*	0,16	0,16	0,16	0,07	*0,05*	0,16	0,16	0,16	0,07

VOLUME to CAPACITY (V/C)

A-B | C-D | E | F

LOS A<0.5, B<0.8, C<0.9, D<0.95, E<0.99

Ped LOS A<0.1, B<0.3, C<0.4, D<0.6, E<0.97, F=0.97+

	V/C from North				V/C from South				V/C from West				V/C from East				V/C	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		0,65	0,65	0,16	**0,63**		0,63	0,63	0,20	**0,62**		0,39	0,39	0,51	**0,46**		0,26	0,26	0,75	**0,62**	0,75	0,61
off																						
PM		0,62	0,62	0,30	**0,60**		0,44	0,44	0,10	**0,43**		0,26	0,26	0,19	**0,24**		0,45	0,45	0,88	**0,75**	0,88	0,56

Average DELAY per vehicle (secs)

A-B | C-D | E | F

LOS A<10, B<20, C<35, D<55, E<80, F=80+

Ped LOS A<10, B<20, C<35, D<55, E<80, F=80+

	delay from North				delay from South				delay from West				delay from East				delay / veh	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		24	24	12	**24**		24	24	13	**23**		41	41	37	**39**		39	39	43	**42**	43	**27**
off																						
PM		23	23	14	**23**		20	20	12	**19**		39	39	33	**37**		41	41	52	**49**	52	**27**

Average QUEUE length (veh)

(= total delay veh-hrs / hr)

OK | WARN | POOR

Q <4 = OK, <10 = WARN, 10+ = POOR

	Q from North				Q from South				Q from West				Q from East				Queue	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	total
AM		1,6	6,4	0,1	**8,1**		0,3	7,5	0,1	**8,0**		0,8	0,5	1,6	**2,9**		0,5	0,4	2,7	**3,6**	7,5	**22,6**
off																						
PM		1,3	6,1	0,3	**7,6**		0,4	4,1	0,1	**4,5**		0,6	0,3	0,4	**1,3**		0,4	1,2	5,0	**6,6**	6,1	**20,1**

AutoJ

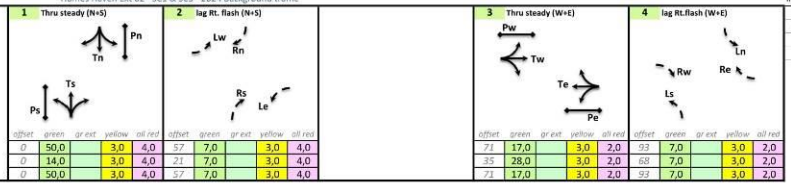
Hendrik Potgieter N/S & W/E Viljoen

Homes Haven Ext 62 - SC1 & SC5 - 2024 Background traffic

4 stage signal, north-south lag flash, west-east lag flash | +4nswe | TIME PLANS

Implementation date:

Stages



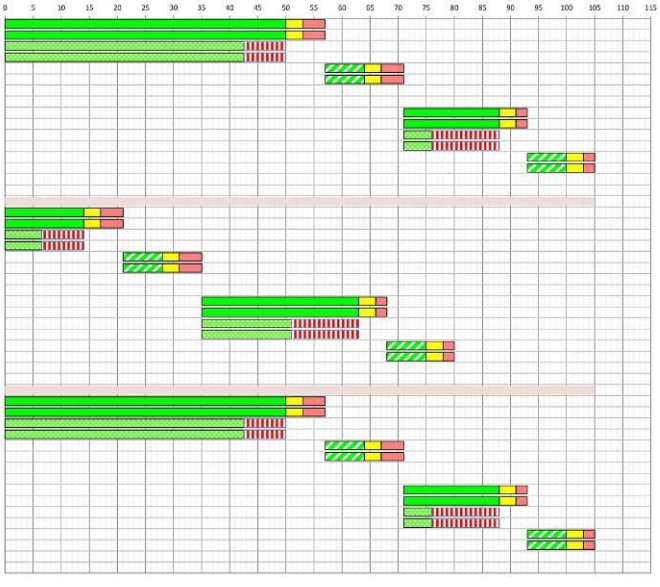
	V/C max	def max	Q max	Q tot
AM	0,75	43	7,5	22,6
off	0,00	0	0,0	0,0
PM	0,88	57	6,1	20,1

	Cycle	1 offset	1 green	1 gr ext	1 yellow	1 all red	2 offset	2 green	2 gr ext	2 yellow	2 all red	3 offset	3 green	3 gr ext	3 yellow	3 all red	4 offset	4 green	4 gr ext	4 yellow	4 all red
AM	**105,0**	*0*	50,0		3,0	4,0	*57*	7,0		3,0	4,0	*71*	17,0		3,0	2,0	*93*	7,0		3,0	2,0
off	**80,0**	*0*	14,0		3,0	4,0	*21*	7,0		3,0	4,0	*35*	28,0		3,0	2,0	*68*	7,0		3,0	2,0
PM	**105,0**	*0*	50,0		3,0	4,0	*57*	7,0		3,0	4,0	*71*	17,0		3,0	2,0	*93*	7,0		3,0	2,0

Peds N/S walk	Peds N/S clear	Peds W/E walk	Peds W/E clear
42,5	7,5	5,0	12,0
6,5	7,5	16,0	12,0
42,5	7,5	5,0	12,0

&Auto1810 mariteng

	Plan	start	gr disc	gr fl	gr ext	yellow	all red	gr max	f r max
AM	AM- 6:00 to 9:00 weekdays								
AM-1	Tn	0,0	50,0		0,0	3,0	4,0		
AM-1	Ts	0,0	50,0		0,0	3,0	4,0		
AM-1	Pn	0,0						42,5	7,5
AM-1	Ps	0,0						42,5	7,5
AM-2	Rn fl	57,0		7,0	0,0	3,0	4,0		
AM-2	Rs fl	57,0		7,0	0,0	3,0	4,0		
AM-2	Lw fl	57,0		0,0	0,0	0,0	0,0		
AM-2	Le fl	57,0		0,0	0,0	0,0	0,0		
AM-3	Tw	71,0	17,0		0,0	3,0	2,0		
AM-3	Te	71,0	17,0		0,0	3,0	2,0		
AM-3	Pw	71,0						5,0	12,0
AM-3	Pe	71,0						5,0	12,0
AM-4	Rw fl	93,0		7,0	0,0	3,0	2,0		
AM-4	Re fl	93,0		7,0	0,0	3,0	2,0		
AM-4	Ln fl	93,0		0,0	0,0	0,0	0,0		
AM-4	Ls fl	93,0		0,0	0,0	0,0	0,0		
off	off- all times except peaks								
off-1	Tn	0,0	14,0		0,0	3,0	4,0		
off-1	Ts	0,0	14,0		0,0	3,0	4,0		
off-1	Pn	0,0						6,5	7,5
off-1	Ps	0,0						6,5	7,5
off-2	Rn fl	21,0		7,0	0,0	3,0	4,0		
off-2	Rs fl	21,0		7,0	0,0	3,0	4,0		
off-2	Lw fl	21,0		0,0	0,0	0,0	0,0		
off-2	Le fl	21,0		0,0	0,0	0,0	0,0		
off-3	Tw	35,0	28,0		0,0	3,0	2,0		
off-3	Te	35,0	28,0		0,0	3,0	2,0		
off-3	Pw	35,0						16,0	12,0
off-3	Pe	35,0						16,0	12,0
off-4	Rw fl	68,0		7,0	0,0	3,0	2,0		
off-4	Re fl	68,0		7,0	0,0	3,0	2,0		
off-4	Ln fl	68,0		0,0	0,0	0,0	0,0		
off-4	Ls fl	68,0		0,0	0,0	0,0	0,0		
PM	PM- 15:30 to 18:30 weekdays								
PM-1	Tn	0,0	50,0		0,0	3,0	4,0		
PM-1	Ts	0,0	50,0		0,0	3,0	4,0		
PM-1	Pn	0,0						42,5	7,5
PM-1	Ps	0,0						42,5	7,5
PM-2	Rn fl	57,0		7,0	0,0	3,0	4,0		
PM-2	Rs fl	57,0		7,0	0,0	3,0	4,0		
PM-2	Lw fl	57,0		0,0	0,0	0,0	0,0		
PM-2	Le fl	57,0		0,0	0,0	0,0	0,0		
PM-3	Tw	71,0	17,0		0,0	3,0	2,0		
PM-3	Te	71,0	17,0		0,0	3,0	2,0		
PM-3	Pw	71,0						5,0	12,0
PM-3	Pe	71,0						5,0	12,0
PM-4	Rw fl	93,0		7,0	0,0	3,0	2,0		
PM-4	Re fl	93,0		7,0	0,0	3,0	2,0		
PM-4	Ln fl	93,0		0,0	0,0	0,0	0,0		
PM-4	Ls fl	93,0		0,0	0,0	0,0	0,0		



Designer

logo

job no.

name

position

registration

signature

date

Authority

logo

ref

name

position

registration

signature

date

AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC2 & SC6 - 2024 Latent + dev traffic

SUMMARY

&AutoJ1810 mariteng

			Volume / Capacity (max)					Delay / vehicle (max)					Queue (max)				
	weighting	100%		18%	4%	18%	10%		4%	7%	4%	10%		6%	3%	6%	10%
	Control	Perf Index	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s sum
BEST overall	RR	86%		0,68		0,66	0,40		11		11	10		3,3		2,5	17,4
best signal	2	61%		0,83		0,81	0,39		31		25	17		4,9		4,4	30,4
		PI	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s sum
Priority	Xns	12%		2,87		2,60	1,38		1 267		1 201	984		416,8		324,6	1 648,0
	Xwe	10%		6,29		6,27	0,78		1 602		1 601	273		101,0		154,3	483,0
	XX	10%		3,35		2,94	1,65		1 357		1 282	1 066		435,2		346,6	1 817,7
	CC	22%		1,55		1,44	0,80		706		620	446		149,1		119,9	663,7
	RR	86%		0,68		0,66	0,40		11		11	10		3,3		2,5	17,4
2 stage	2	61%		0,83		0,81	0,39		31		25	17		4,9		4,4	30,4
3 stage	3ns	43%		0,97		0,87	0,51		93		39	46		17,2		8,4	66,6
	3we	53%		0,69		1,09	0,40		30		280	29		5,9		8,2	43,2
	n3	48%		0,97		0,87	0,44		93		39	30		12,0		5,9	46,2
	s3	41%		0,97		1,09	0,46		93		285	38		17,2		8,4	63,8
	w3	42%		0,95		1,09	0,48		59		285	34		11,8		8,3	60,2
	e3	48%		0,86		1,09	0,41		40		280	27		7,1		8,2	44,4
4 stage	4nswe	51%		0,85		0,83	0,43		49		49	29		8,2		6,9	52,0
	n4we	48%		0,85		0,98	0,39		49		126	32		8,2		12,1	50,2
	s4we	41%		0,85		1,43	0,41		49		670	56		8,2		19,6	71,0
	w4ns	33%		1,15		0,93	0,58		377		60	267		115,6		14,1	287,6
	e4ns	44%		0,95		0,89	0,47		74		52	46		16,2		6,2	65,5
	nw4	37%		1,08		0,93	0,50		285		60	131		84,4		8,6	150,0
	ne4	48%		0,95		0,89	0,42		74		52	34		13,4		5,0	51,1
	sw4	29%		1,15		1,43	0,53		377		678	183		115,6		19,8	223,8
	se4	37%		0,95		1,43	0,44		74		670	47		16,2		19,5	75,5
separate (split) stage	n-s-3	29%		1,21		1,01	0,66		457		167	375		150,2		44,5	471,6
	w-e-3	47%		0,76		1,09	0,45		37		287	38		7,9		8,4	57,3
	n-s-4we	30%		1,12		1,07	0,63		346		273	276		113,6		26,3	329,3
	w-e-4ns	48%		0,80		0,83	0,48		51		47	39		10,9		11,3	67,8
	n-s-w-e-4	26%		1,29		1,12	0,71		555		353	436		182,5		94,7	642,6
	optimums	86%		0,68		0,66	0,39		11		11	10		3,3		2,5	17,4

performance colours: best | near best, within 10% of optimum | LOS colours: A-B | C-D | E | F

AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC2 & SC6 - 2024 Latent + dev traffic

&AutoJ1810 mariteng

2 — **2 stage signal**

Volume (evu/hr)

	from North					from South					from West					from East					intersection
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	total
AM		240	1 104	42	1 386		70	1 184	38	1 292		107	68	220	395		44	48	227	319	3 392
off																					
PM		207	973	105	1 285		106	857	19	982		86	39	75	200		33	158	347	538	3 005

Lanes

(if lanes shared L:S or S:R = 0.5:0.5; L:S:R = 0.3:0.4:0.3)

	from North				from South				from West				from East			
	L~	L	S	R	L~	L	S	R	L~	L	S	R	L~	L	S	R
# lanes		0,5	1,5	1,0		0,5	1,5	1,0		0,5	0,5	1,0		0,5	0,5	1,0

Green / Cycle ratio

	g/c from North				g/c from South				g/c from West				g/c from East			
	peds	left	thru	rt gaps	peds	left	thru	rt gaps	peds	left	thru	rt gaps	peds	left	thru	rt gaps
AM	0,41	0,52	0,52	0,52	0,41	0,52	0,52	0,52	0,14	0,31	0,31	0,31	0,14	0,31	0,31	0,31
off	0,14	0,27	0,27	0,27	0,14	0,27	0,27	0,27	0,33	0,53	0,53	0,53	0,33	0,53	0,53	0,53
PM	0,38	0,48	0,48	0,48	0,38	0,48	0,48	0,48	0,17	0,35	0,35	0,35	0,17	0,35	0,35	0,35

VOLUME to CAPACITY (V/C)

A-B | C-D | E | F

LOS A<0.5, B<0.8, C<0.9, D<0.95, E<0.99

Ped LOS A<0.1, B<0.3, C<0.4, D<0.6, E<0.97, F=0.97+

	V/C from North				V/C from South				V/C from West				V/C from East				V/C	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		0,66	0,66	0,38	0,66		0,62	0,62	0,35	0,61		0,30	0,30	0,67	0,51		0,15	0,15	0,83	0,64	0,83	0,62
off																						
PM		0,63	0,63	0,81	0,64		0,51	0,51	0,17	0,50		0,19	0,19	0,35	0,25		0,29	0,29	0,73	0,58	0,81	0,56

Average DELAY per vehicle (secs)

A-B | C-D | E | F

LOS A<10, B<20, C<35, D<55, E<80, F=80+

Ped LOS A<10, B<20, C<35, D<55, E<80, F=80+

	delay from North				delay from South				delay from West				delay from East				delay / veh	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		16	16	11	16		15	15	11	15		19	19	25	22		18	18	31	27	31	17
off																						
PM		16	16	23	17		14	14	11	14		16	16	18	17		17	17	25	22	25	17

Average QUEUE length (veh)

(= total delay veh-hrs / hr)

OK | WARN | POOR

Q <4 = OK, <10 = WARN, 10+ = POOR

	Q from North				Q from South				Q from West				Q from East				Queue	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	total
AM		1,1	4,9	0,1	6,1		0,3	4,9	0,1	5,3		0,6	0,4	1,5	2,4		0,2	0,2	2,0	2,4	4,9	16,3
off																						
PM		0,9	4,4	0,7	6,0		0,4	3,4	0,1	3,9		0,4	0,2	0,4	0,9		0,2	0,8	2,4	3,3	4,4	14,2

AutoJ

Hendrik Potgieter N/S & W/E Viljoen

Homes Haven Ext 02 - SC2 & SC6 - 2024 Latent + dev traffic

2 stage signal | +2 | TIME PLANS

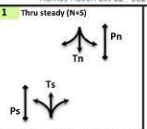
Implementation date:

	V/C max	def max	Q max	Q tot
AM	0,83	31	4,9	16,3
off	0,00	0	0,0	0,0
PM	0,81	25	4,4	14,2

Stages

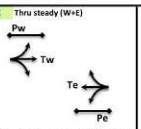
Cycle	
AM	70,0
off	60,0
PM	70,0

1 Thru steady (N+S)



offset	green	gr ext	yellow	all red
0	36,2		3,0	4,0
0	16,0		3,0	4,0
0	33,8		3,0	4,0

2 Thru steady (W+E)

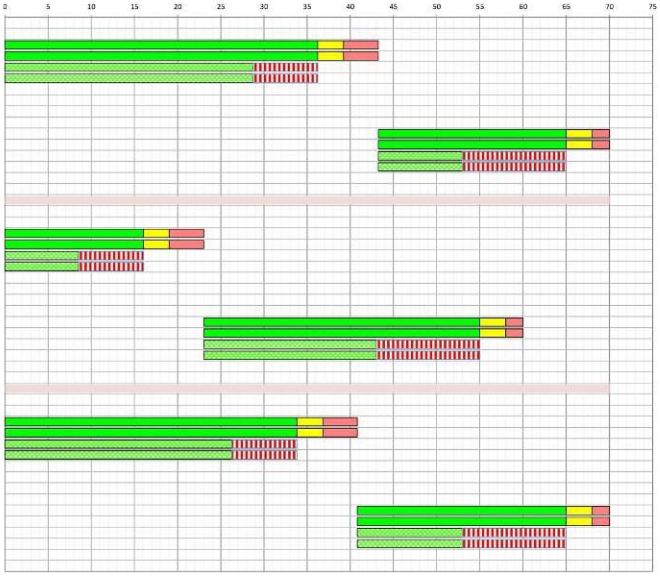


offset	green	gr ext	yellow	all red
43	21,8		3,0	2,0
23	32,0		3,0	2,0
41	24,2		3,0	2,0

Peds N/S walk	Peds N/S clear	Peds W/E walk	Peds W/E clear
28,7	7,5	9,8	12,0
8,5	7,5	20,0	12,0
26,3	7,5	12,2	12,0

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job/stg	Plan	start	gr disc	gr II	gr ext	yellow	all red	gr max	I + max
AM	AM- 6:00 to 9:00 weekdays								
AM-1	Tn	0,0	36,2		0,0	3,0	4,0		
AM-1	Ts	0,0	36,2		0,0	3,0	4,0		
AM-1	Pn	0,0						28,7	7,5
AM-1	Ps	0,0						28,7	7,5
AM-2	Tw	43,2	21,8		0,0	3,0	2,0		
AM-2	Te	43,2	21,8		0,0	3,0	2,0		
AM-2	Pw	43,2						9,8	12,0
AM-2	Pe	43,2						9,8	12,0
off	off- all times except peaks								
off-1	Tn	0,0	16,0		0,0	3,0	4,0		
off-1	Ts	0,0	16,0		0,0	3,0	4,0		
off-1	Pn	0,0						8,5	7,5
off-1	Ps	0,0						8,5	7,5
off-2	Tw	23,0	32,0		0,0	3,0	2,0		
off-2	Te	23,0	32,0		0,0	3,0	2,0		
off-2	Pw	23,0						20,0	12,0
off-2	Pe	23,0						20,0	12,0
PM	PM- 15:30 to 18:30 weekdays								
PM-1	Tn	0,0	33,8		0,0	3,0	4,0		
PM-1	Ts	0,0	33,8		0,0	3,0	4,0		
PM-1	Pn	0,0						26,3	7,5
PM-1	Ps	0,0						26,3	7,5
PM-2	Tw	40,8	24,2		0,0	3,0	2,0		
PM-2	Te	40,8	24,2		0,0	3,0	2,0		
PM-2	Pw	40,8						12,2	12,0
PM-2	Pe	40,8						12,2	12,0



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AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC3 & SC7 - 2029 Background traffic

&AutoJ1810 mariteng

2 — **2 stage signal**

Volume (evu/hr)

	from North					from South					from West					from East					intersection	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R		total
AM		279	1 114	36	**1 429**		60	1 321	44	**1 425**		86	55	175	**316**		51	41	263	**355**		**3 525**
off																						
PM		240	1 087	78	**1 405**		78	871	22	**971**		64	30	56	**150**		39	124	403	**566**		**3 092**

Lanes

(if lanes shared L:S or S:R = 0.5:0.5; L:S:R = 0.3:0.4:0.3)

	from North				from South				from West				from East			
	L~	L	S	R	L~	L	S	R	L~	L	S	R	L~	L	S	R
# lanes		0,5	1,5	1,0		0,5	1,5	1,0		0,5	0,5	1,0		0,5	0,5	1,0

Green / Cycle ratio

	g/c from North					g/c from South					g/c from West					g/c from East				
	peds	left	thru	rt gaps		peds	left	thru	rt gaps		peds	left	thru	rt gaps		peds	left	thru	rt gaps	
AM	*0,39*	0,50	0,50	0,50		*0,39*	0,50	0,50	0,50		*0,16*	0,33	0,33	0,33		*0,16*	0,33	0,33	0,33	
off	*0,14*	0,27	0,27	0,27		*0,14*	0,27	0,27	0,27		*0,33*	0,53	0,53	0,53		*0,33*	0,53	0,53	0,53	
PM	*0,38*	0,49	0,49	0,49		*0,38*	0,49	0,49	0,49		*0,17*	0,34	0,34	0,34		*0,17*	0,34	0,34	0,34	

VOLUME to CAPACITY (V/C)

A-B | C-D | E | F

LOS A<0.5, B<0.8, C<0.9, D<0.95, E<0.99

Ped LOS A<0.1, B<0.3, C<0.4, D<0.6, E<0.97, F=0.97+

	V/C from North					V/C from South					V/C from West					V/C from East					V/C	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		0,71	0,71	0,33	**0,70**		0,70	0,70	0,40	**0,69**		0,23	0,23	0,58	**0,43**		0,15	0,15	0,84	**0,66**	0,84	0,67
off																						
PM		0,69	0,69	0,57	**0,69**		0,49	0,49	0,20	**0,49**		0,15	0,15	0,27	**0,19**		0,25	0,25	0,77	**0,62**	0,77	0,59

Average DELAY per vehicle (secs)

A-B | C-D | E | F

LOS A<10, B<20, C<35, D<55, E<80, F=80+

Ped LOS A<10, B<20, C<35, D<55, E<80, F=80+

	delay from North					delay from South					delay from West					delay from East					delay / veh	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		18	18	11	**18**		18	18	12	**17**		18	18	22	**20**		17	17	31	**27**	31	**19**
off																						
PM		18	18	15	**18**		14	14	11	**14**		16	16	17	**17**		17	17	27	**24**	27	**18**

Average QUEUE length (veh)

(= total delay veh-hrs / hr)

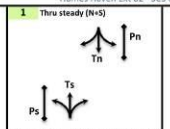
OK | WARN | POOR

Q <4 = OK, <10 = WARN, 10+ = POOR

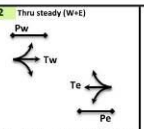
	Q from North					Q from South					Q from West					Q from East					Queue	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	total
AM		1,4	5,5	0,1	**7,0**		0,3	6,4	0,1	**6,9**		0,4	0,3	1,1	**1,8**		0,2	0,2	2,3	**2,7**	6,4	**18,4**
off																						
PM		1,2	5,4	0,3	**6,9**		0,3	3,3	0,1	**3,7**		0,3	0,1	0,3	**0,7**		0,2	0,6	3,0	**3,8**	5,4	**15,1**

Stages

1 Thru steady (N+S)



2 Thru steady (W+E)



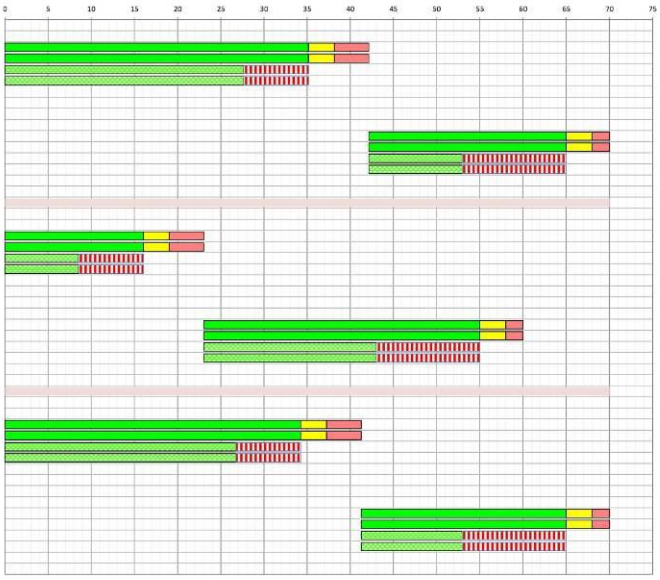
Cycle	1 offset	1 green	1 gr ext	1 yellow	1 all red	2 offset	2 green	2 gr ext	2 yellow	2 all red
AM	70,0	0	35,1		3,0	4,0	42	22,9		3,0	2,0
off	60,0	0	16,0		3,0	4,0	23	32,0		3,0	2,0
PM	70,0	0	34,3		3,0	4,0	41	23,7		3,0	2,0

	V/Cmax	def max	Q max	Q tot
AM	0,84	31	6,4	18,4
off	0,00	0	0,0	0,0
PM	0,77	27	5,4	15,1

Peds N/S walk	Peds N/S clear	Peds W/E walk	Peds W/E clear
27,6	7,5	10,9	12,0
8,5	7,5	20,0	12,0
26,8	7,5	11,7	12,0

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	Plan	start	gr disc	gr fl	gr ext	yellow	all red	gr man	Fr max
AM	AM- 6:00 to 9:00 weekdays								
AM-1	Tn	0,0	35,1		0,0	3,0	4,0		
AM-1	Ts	0,0	35,1		0,0	3,0	4,0		
AM-1	Pn	0,0						27,6	7,5
AM-1	Ps	0,0						27,6	7,5
AM-2	Tw	42,1	22,9		0,0	3,0	2,0		
AM-2	Te	42,1	22,9		0,0	3,0	2,0		
AM-2	Pw	42,1						10,9	12,0
AM-2	Pe	42,1						10,9	12,0
off	off- all times except peaks								
off-1	Tn	0,0	16,0		0,0	3,0	4,0		
off-1	Ts	0,0	16,0		0,0	3,0	4,0		
off-1	Pn	0,0						8,5	7,5
off-1	Ps	0,0						8,5	7,5
off-2	Tw	23,0	32,0		0,0	3,0	2,0		
off-2	Te	23,0	32,0		0,0	3,0	2,0		
off-2	Pw	23,0						20,0	12,0
off-2	Pe	23,0						20,0	12,0
PM	PM- 15:30 to 18:30 weekdays								
PM-1	Tn	0,0	34,3		0,0	3,0	4,0		
PM-1	Ts	0,0	34,3		0,0	3,0	4,0		
PM-1	Pn	0,0						26,8	7,5
PM-1	Ps	0,0						26,8	7,5
PM-2	Tw	41,3	23,7		0,0	3,0	2,0		
PM-2	Te	41,3	23,7		0,0	3,0	2,0		
PM-2	Pw	41,3						11,7	12,0
PM-2	Pe	41,3						11,7	12,0



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AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC4 & SC8 - 2029 Latent + dev traffic

SUMMARY

&AutoJ1810 mariteng

			Volume / Capacity (max)					Delay / vehicle (max)					Queue (max)				
	weighting	100%		18%	4%	18%	10%		4%	7%	4%	10%		6%	3%	6%	10%
	Control	Perf Index	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s sum
BEST overall	RR	80%		0,97		0,92	0,50		50		28	18		5,2		4,3	33,3
best signal	3we	62%		0,79		1,20	0,46		33		433	36		8,1		13,9	60,1
		PI	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s ave	Peds	AM	off	PM	i/s sum
Priority	Xns	10%		4,01		4,17	1,94		1 446		1 456	1 135		548,5		437,5	2 205,7
	Xwe	8%		11,98		11,24	1,29		1 738		1 728	331		126,9		193,4	651,8
	XX	12%		3,83		3,40	1,89		1 424		1 364	1 149		530,6		425,6	2 248,2
	CC	20%		2,30		2,05	1,02		1 086		992	734		249,5		214,0	1 308,2
	RR	80%		0,97		0,92	0,50		50		28	18		5,2		4,3	33,3
2 stage	2	60%		0,95		1,05	0,50		55		224	31		12,3		7,2	59,5
3 stage	3ns	36%		1,33		1,01	0,66		578		167	439		201,7		52,1	566,4
	3we	62%		0,79		1,20	0,46		33		433	36		8,1		13,9	60,1
	n3	41%		1,24		1,01	0,55		484		160	221		183,7		17,9	275,2
	s3	35%		1,33		1,20	0,58		578		439	267		201,7		52,1	390,5
	w3	35%		1,26		1,20	0,63		504		438	375		175,8		21,8	465,7
	e3	49%		0,98		1,20	0,50		107		432	51		23,9		13,9	87,8
4 stage	4nswe	61%		0,84		0,92	0,52		53		50	41		12,0		15,7	76,3
	n4we	53%		0,98		1,05	0,47		116		239	48		12,2		26,7	81,4
	s4we	46%		0,98		1,36	0,49		116		602	72		13,2		26,7	106,4
	w4ns	29%		1,69		1,24	0,80		867		482	683		302,7		150,3	1 002,0
	e4ns	42%		1,23		0,96	0,60		475		73	354		165,8		10,6	414,3
	nw4	32%		1,57		1,16	0,66		793		393	432		301,0		44,0	560,8
	ne4	46%		1,15		0,96	0,52		374		73	180		141,8		8,1	219,6
	sw4	29%		1,69		1,36	0,70		867		607	431		302,7		150,3	719,8
	se4	36%		1,23		1,36	0,55		475		601	226		165,8		19,4	291,8
separate	n-s-3	29%		1,60		1,22	0,82		810		467	664		307,2		145,0	1 078,7
(split)	w-e-3	55%		0,86		1,20	0,52		39		440	49		11,6		14,2	80,8
stage	n-s-4we	32%		1,33		1,18	0,75		588		425	477		223,0		131,6	847,7
	w-e-4ns	47%		0,93		1,06	0,58		53		255	130		18,3		79,4	173,9
	n-s-w-e-4	27%		1,55		1,40	0,86		779		660	610		295,5		205,1	1 164,6
	optimums	80%		0,79		0,92	0,46		33		28	18		5,2		4,3	33,3

performance colours: best | near best, within 10% of optimum | LOS colours: A-B | C-D | E | F

AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC4 & SC8 - 2029 Latent + dev traffic

&AutoJ1810 mariteng

3we — **3 stage signal, west-east lag flash**

Volume (evu/hr)

	from North					from South					from West					from East					intersection	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R		total
AM		279	1 257	47	1 583		78	1 366	44	1 488		119	76	244	439		51	54	263	368		3 878
off																						
PM		240	1 123	116	1 479		117	977	22	1 116		95	43	83	221		39	175	403	617		3 433

Lanes

(If lanes shared L:S or S:R = 0.5:0.5; L:S:R = 0.3:0.4:0.3)

	from North				from South				from West				from East			
	L~	L	S	R	L~	L	S	R	L~	L	S	R	L~	L	S	R
# lanes		0,5	1,5	1,0		0,5	1,5	1,0		0,5	0,5	1,0		0,5	0,5	1,0

Green / Cycle ratio

	g/c from North					g/c from South					g/c from West					g/c from East				
	peds	left	thru	rt gaps		peds	left	thru	rt gaps		peds	left	thru	rt gaps	rt flash	peds	left	thru	rt gaps	rt flash
AM	0,41	0,50	0,50	0,50		0,41	0,50	0,50	0,50		0,05	0,20	0,20	0,20	0,09	0,05	0,20	0,20	0,20	0,09
off	0,11	0,22	0,22	0,22		0,11	0,22	0,22	0,22		0,27	0,44	0,44	0,44	0,10	0,27	0,44	0,44	0,44	0,10
PM	0,41	0,50	0,50	0,50		0,41	0,50	0,50	0,50		0,05	0,20	0,20	0,20	0,09	0,05	0,20	0,20	0,20	0,09

VOLUME to CAPACITY (V/C)

A-B | C-D | E | F

LOS A<0.5, B<0.8, C<0.9, D<0.95, E<0.99

Ped LOS A<0.1, B<0.3, C<0.4, D<0.6, E<0.97, F=0.97+

	V/C from North					V/C from South					V/C from West					V/C from East					V/C	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		0,79	0,79	0,49	**0,78**		0,73	0,73	0,46	**0,73**		0,51	0,51	0,67	**0,60**		0,28	0,28	0,78	**0,64**	0,79	0,72
off																						
PM		0,70	0,70	1,20	**0,74**		0,56	0,56	0,23	**0,55**		0,36	0,36	0,28	**0,33**		0,56	0,56	0,90	**0,78**	1,20	0,66

Average DELAY per vehicle (secs)

A-B | C-D | E | F

LOS A<10, B<20, C<35, D<55, E<80, F=80+

Ped LOS A<10, B<20, C<35, D<55, E<80, F=80+

	delay from North					delay from South					delay from West					delay from East					delay / veh	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	overall
AM		23	23	15	**23**		21	21	14	**21**		30	30	29	**30**		28	28	33	**31**	33	**24**
off																						
PM		20	20	433	**52**		16	16	12	**16**		29	29	23	**26**		31	31	44	**39**	433	**36**

Average QUEUE length (veh)

(= total delay veh-hrs / hr)

OK | WARN | POOR

Q <4 = OK, <10 = WARN, 10+ = POOR

	Q from North					Q from South					Q from West					Q from East					Queue	
	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	peds	left	str	right	L+S+R	max	total
AM		1,8	8,1	0,2	**10,1**		0,5	7,9	0,2	**8,5**		1,0	0,6	2,0	**3,6**		0,4	0,4	2,4	**3,2**	8,1	**25,4**
off																						
PM		1,3	6,1	13,9	**21,3**		0,5	4,4	0,1	**5,0**		0,8	0,3	0,5	**1,6**		0,3	1,5	4,9	**6,8**	13,9	**34,7**

AutoJ

Hendrik Potgieter N/S & W/E Viljoen

Homes Haven Ext 62 - SC4 & SC8 - 2029 Latent + dev traffic

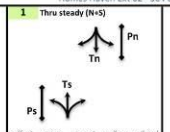
3 stage signal, west-east lag flash | +3we | TIME PLANS

Implementation date:

Stages

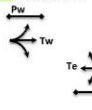
	V/Cmax	def max	Q max	Q tot
AM	0,79	33	8,1	25,4
off	0,00	0	0,0	0,0
PM	1,20	433	13,9	34,7

1 Thru steady (N+S)



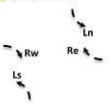
Cycle	offset	green	gr ext	yellow	all red
AM 80,0	0	40,0		3,0	4,0
off 70,0	0	15,4		3,0	4,0
PM 80,0	0	40,0		3,0	4,0

2 Thru steady (W+E)



offset	green	gr ext	yellow	all red
47	16,0		3,0	2,0
22	30,6		3,0	2,0
47	16,0		3,0	2,0

3 lag RT.flash (W+E)

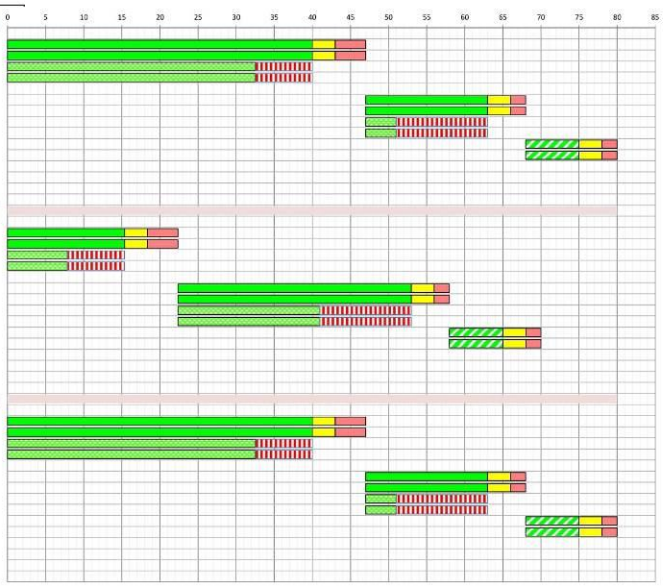


offset	green	gr ext	yellow	all red
68	7,0		3,0	2,0
58	7,0		3,0	2,0
68	7,0		3,0	2,0

Peds N/S walk	Peds N/S clear	Peds W/E walk	Peds W/E clear
32,5	7,5	4,0	12,0
7,9	7,5	18,6	12,0
32,5	7,5	4,0	12,0

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subtype	Plan	start	gr dist	gr fl	gr ext	yellow	all red	gr man.	f r max
AM	AM- 6:00 to 9:00 weekdays								
AM-1	Tn	0,0	40,0		0,0	3,0	4,0		
AM-1	Ts	0,0	40,0		0,0	3,0	4,0		
AM-1	Pn	0,0						32,5	7,5
AM-1	Ps	0,0						32,5	7,5
AM-2	Tw	47,0	16,0		0,0	3,0	2,0		
AM-2	Te	47,0	16,0		0,0	3,0	2,0		
AM-2	Pw	47,0						4,0	12,0
AM-2	Pe	47,0						4,0	12,0
AM-3	Rw fl	68,0		7,0	0,0	3,0	2,0		
AM-3	Re fl	68,0		7,0	0,0	3,0	2,0		
AM-3	Ln fl	68,0		0,0	0,0	0,0	0,0		
AM-3	Ls fl	68,0		0,0	0,0	0,0	0,0		
off	off- all times except peaks								
off-1	Tn	0,0	15,4		0,0	3,0	4,0		
off-1	Ts	0,0	15,4		0,0	3,0	4,0		
off-1	Pn	0,0						7,9	7,5
off-1	Ps	0,0						7,9	7,5
off-2	Tw	22,4	30,6		0,0	3,0	2,0		
off-2	Te	22,4	30,6		0,0	3,0	2,0		
off-2	Pw	22,4						18,6	12,0
off-2	Pe	22,4						18,6	12,0
off-3	Rw fl	58,0		7,0	0,0	3,0	2,0		
off-3	Re fl	58,0		7,0	0,0	3,0	2,0		
off-3	Ln fl	58,0		0,0	0,0	0,0	0,0		
off-3	Ls fl	58,0		0,0	0,0	0,0	0,0		
PM	PM- 15:30 to 18:30 weekdays								
PM-1	Tn	0,0	40,0		0,0	3,0	4,0		
PM-1	Ts	0,0	40,0		0,0	3,0	4,0		
PM-1	Pn	0,0						32,5	7,5
PM-1	Ps	0,0						32,5	7,5
PM-2	Tw	47,0	16,0		0,0	3,0	2,0		
PM-2	Te	47,0	16,0		0,0	3,0	2,0		
PM-2	Pw	47,0						4,0	12,0
PM-2	Pe	47,0						4,0	12,0
PM-3	Rw fl	68,0		7,0	0,0	3,0	2,0		
PM-3	Re fl	68,0		7,0	0,0	3,0	2,0		
PM-3	Ln fl	68,0		0,0	0,0	0,0	0,0		
PM-3	Ls fl	68,0		0,0	0,0	0,0	0,0		



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AutoJ

Hendrik Potgieter & Viljoen

Homes Haven Ext 62 - SC4 & SC8 - 2029 Latent + dev traffic

&AutoJ1810 mariteng

e4ns | **4 stage signal, north-south lag flash, lead flash from east**

Volume (evu/hr)

	from North				from South				from West				from East				intersection
	peds	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	total
AM		279	1 257	47	**1 583**		78	1 366	44	**1 488**		119	76	244	**439**		51	54	263	**368**	**3 878**
off																					
PM		240	1 123	116	**1 479**		117	977	22	**1 116**		95	43	83	**221**		39	175	403	**617**	**3 433**

Lanes

(if lanes shared L:S or S:R = 0.5:0.5; L:S:R = 0.3:0.4:0.3)

	from North				from South				from West				from East			
	L~	L	S	R	L~	L	S	R	L~	L	S	R	L~	L	S	R
# lanes		0,5	1,5	1,0		0,5	1,5	1,0		0,5	0,5	1,0		0,5	0,5	1,0

Green / Cycle ratio

	g/c from North					g/c from South					g/c from West					g/c from East				
	peds	left	thru	rt gaps	rt flash	*peds*	left	thru	rt gaps	rt flash	*peds*	left	thru	rt gaps		*peds*	left	thru	rt gaps	rt flash
AM	*0,25*	0,32	0,32	0,32	0,07	*0,25*	0,32	0,32	0,32	0,07	*0,19*	0,31	0,31	0,31		*0,19*	0,42	0,42	0,35	0,07
off	*0,09*	0,18	0,18	0,18	0,09	*0,09*	0,18	0,18	0,18	0,09	*0,21*	0,36	0,36	0,36		*0,21*	0,50	0,50	0,41	0,09
PM	*0,33*	0,41	0,41	0,41	0,08	*0,33*	0,41	0,41	0,41	0,08	*0,03*	0,17	0,17	0,17		*0,03*	0,30	0,30	0,21	0,09

VOLUME to CAPACITY (V/C)

A-B | C-D | E | F

LOS A<0.5, B<0.8, C<0.9, D<0.95, E<0.99

Ped LOS A<0.1, B<0.3, C<0.4, D<0.6, E<0.97, F=0.97+

	V/C from North					V/C from South					V/C from West					V/C from East					V/C	
	peds	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	max	overall
AM		1,23	1,23	0,23	**1,20**		1,15	1,15	0,22	**1,12**		0,33	0,33	1,13	**0,77**		0,13	0,13	0,85	**0,64**	1,23	1,07
off																						
PM		0,85	0,85	0,51	**0,82**		0,68	0,68	0,10	**0,67**		0,43	0,43	0,75	**0,55**		0,37	0,37	0,93	**0,74**	0,93	0,74

Average DELAY per vehicle (secs)

A-B | C-D | E | F

LOS A<10, B<20, C<35, D<55, E<80, F=80+

Ped LOS A<10, B<20, C<35, D<55, E<80, F=80+

	delay from North					delay from South					delay from West					delay from East					delay / veh	
	peds	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	max	overall
AM		475	475	21	**461**		374	374	21	**363**		27	27	349	**206**		18	18	36	**31**	475	**354**
off																						
PM		34	34	18	**33**		25	25	13	**25**		35	35	41	**37**		26	26	55	**45**	55	**33**

Average QUEUE length (veh)

(= total delay veh-hrs / hr)

OK | WARN | POOR

Q <4 = OK, <10 = WARN, 10+ = POOR

	Q from North					Q from South					Q from West					Q from East					Queue	
	peds	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	*peds*	left	str	right	L+S+R	max	total
AM		36,8	165,8	0,3	**202,9**		8,1	141,8	0,3	**150,1**		0,9	0,6	23,6	**25,1**		0,3	0,3	2,6	**3,2**	165,8	**381,3**
off																						
PM		2,3	10,6	0,6	**13,5**		0,8	6,9	0,1	**7,8**		0,9	0,4	0,9	**2,3**		0,3	1,3	6,1	**7,7**	10,6	**31,2**

AutoJ

Hendrik Potgieter N/S & W/E Viljoen

Homes Haven Ext 62 - SC4 & SC8 - 2029 Latent + dev traffic

4 stage signal, north-south lag flash, lead flash from east | **+e4ns** | **TIME PLANS**

Implementation date:

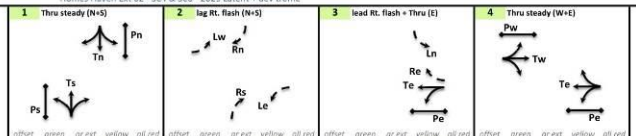
	v/c max	def min	Q max	Q tot
AM	1,23	475	165,8	381,3
off	0,00	0	0,0	0,0
PM	0,93	55	10,6	31,2

Warn: Check W/E ped. time

Peds N/S		Peds W/E	
walk	clear	walk	clear
24,5	7,5	19,0	12,0
6,9	7,5	16,6	12,0
29,5	7,5	3,0	12,0

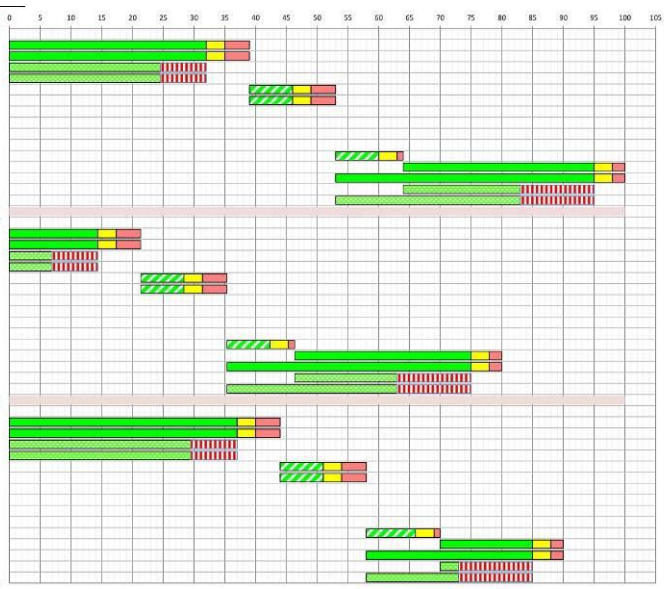
&AutoJ1810 mariteng

Stages



	Cycle	1 offset	1 green	1 gr ext	1 yellow	1 all red	2 offset	2 green	2 gr ext	2 yellow	2 all red	3 offset	3 green	3 gr ext	3 yellow	3 all red	4 offset	4 green	4 gr ext	4 yellow	4 all red
AM	**100,0**	*0*	32,0		3,0	4,0	*39*	7,0		3,0	4,0	*53*	7,0		3,0	1,0	*64*	31,0		3,0	2,0
off	**80,0**	*0*	14,4		3,0	4,0	*21*	7,0		3,0	4,0	*35*	7,0		3,0	1,0	*46*	28,6		3,0	2,0
PM	**90,0**	*0*	37,0		3,0	4,0	*44*	7,0		3,0	4,0	*58*	8,0		3,0	1,0	*70*	15,0		3,0	2,0

	Plan	start	gr disc	gr fl	gr ext	yellow	all red	gr man	f r man
AM	AM- 6:00 to 9:00 weekdays								
AM-1	Tn	0,0	32,0		0,0	3,0	4,0		
AM-1	Ts	0,0	32,0		0,0	3,0	4,0		
AM-1	Pn	0,0						24,5	7,5
AM-1	Ps	0,0						24,5	7,5
AM-2	Rn fl	39,0		7,0	0,0	3,0	4,0		
AM-2	Rs fl	39,0		7,0	0,0	3,0	4,0		
AM-2	Lw fl	39,0		0,0	0,0	0,0	0,0		
AM-2	Le fl	39,0		0,0	0,0	0,0	0,0		
AM-3	Ln fl	53,0		0,0	0,0	0,0	0,0		
AM-3	Re fl	53,0		7,0	0,0	3,0	1,0		
AM-4	Tw	64,0	31,0		0,0	3,0	2,0		
AM-34	Te	53,0	42,0		0,0	3,0	2,0		
AM-4	Pw	64,0						19,0	12,0
AM-34	Pe	53,0						30,0	12,0
off	off- all times except peaks								
off-1	Tn	0,0	14,4		0,0	3,0	4,0		
off-1	Ts	0,0	14,4		0,0	3,0	4,0		
off-1	Pn	0,0						6,9	7,5
off-1	Ps	0,0						6,9	7,5
off-2	Rn fl	21,4		7,0	0,0	3,0	4,0		
off-2	Rs fl	21,4		7,0	0,0	3,0	4,0		
off-2	Lw fl	21,4		0,0	0,0	0,0	0,0		
off-2	Le fl	21,4		0,0	0,0	0,0	0,0		
off-3	Ln fl	35,4		0,0	0,0	0,0	0,0		
off-3	Re fl	35,4		7,0	0,0	3,0	1,0		
off-4	Tw	46,4	28,6		0,0	3,0	2,0		
off 34	Te	35,4	39,6		0,0	3,0	2,0		
off-4	Pw	46,4						16,6	12,0
off 34	Pe	35,4						27,6	12,0
PM	PM- 15:30 to 18:30 weekdays								
PM-1	Tn	0,0	37,0		0,0	3,0	4,0		
PM-1	Ts	0,0	37,0		0,0	3,0	4,0		
PM-1	Pn	0,0						29,5	7,5
PM-1	Ps	0,0						29,5	7,5
PM-2	Rn fl	44,0		7,0	0,0	3,0	4,0		
PM-2	Rs fl	44,0		7,0	0,0	3,0	4,0		
PM-2	Lw fl	44,0		0,0	0,0	0,0	0,0		
PM-2	Le fl	44,0		0,0	0,0	0,0	0,0		
PM-3	Ln fl	58,0		0,0	0,0	0,0	0,0		
PM-3	Re fl	58,0		8,0	0,0	3,0	1,0		
PM-4	Tw	70,0	15,0		0,0	3,0	2,0		
PM-34	Te	58,0	27,0		0,0	3,0	2,0		
PM-4	Pw	70,0						3,0	12,0
PM-34	Pe	58,0						15,0	12,0



Designer

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job no.
name
position
registration
signature
date

Authority

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ref
name
position
registration
signature
date

ANNEXURE K:

PROPOSED ACCESS ARRANGEMENTS & INTERNAL PARKING – MARITENG PLAN NO.: 194-39-01 (Rev 1)



MARITENG CONSULTING ENGINEERS

P.O. BOX 8864 VERWOERD PARK 1453
T: +27 87 821 7071
C: +27 82 854 7358
E: louis@mariteng.co.za

NR	DATE	AMENDMENTS	ENGINEER	DATE
1	15/11/24	New site layout	LdT	15/11/24

PROJECT:

PROPOSED TOWNSHIP HOMES HAVEN EXTENSION 65

PROPOSED ACCESS ARRANGEMENTS & INTERNAL PARKING

SCALE:	DATE:	REVISION:
1:500	15/11/24	1

PR.TECH. 2002 70072

PLAN NO. 194-39-01

ANNEXURE L:

DETAIL RESULTS – OPERATIONAL ASSESSMENT OF ACCESS CONTROL SYSTEM

Ruimsig Country Estate Access – AM Peak Outbound

Homes Haven Extension 65

Estate Access on Viljoen (AM Outbound)

			1 Gate		2 Gates	
Peak hour traffic volume		=	439 veh / h		439 veh / h	
Peak hour factor		=	1		1	
Average arrival rate at peak	**Q**	=	439 veh / h		439 veh / h	
Average service rate			**8,57** sec / veh		**8,57** sec / veh	
	C	=	420 services/h		420 services/h	
Traffic intensity	ϕ	=	1,05		1,05	
Number of channels	**N**	=	1 gate		2 gates	
Traffic intensity per service channel	θ	=	1,05		0,52	
Probability that n vehicles will be in the system	*n*		*P (x=n)*	*P (x ≤ n)*	*P (x=n)*	*P (x ≤ n)*
	P_0	=	na	na	0,31	0,69
	P_1	=	na	na	0,33	0,67
	P_2	=	na	na	0,17	0,83
	P_3	=	na	na	0,09	0,91
	P_4	=	na	na	0,05	0,95
	P_5	=	na	na	0,02	0,98
	P_6	=	na	na	0,01	0,99
	P_7	=	na	na	0,01	0,99
	P_8	=	na	na	0,00	1,00
	P_9	=	na	na	0,00	1,00
	P_{10}	=	na	na	0,00	1,00
	P_{11}	=	na	na	0,00	1,00
	P_{12}	=	na	na	0,00	1,00
	P_{13}	=	na	na	0,00	1,00
	P_{14}	=	na	na	0,00	1,00
	P_{15}	=	na	na	0,00	1,00
	P_{16}	=	na	na	0,00	1,00
	P_{17}	=	na	na	0,00	1,00
	P_{18}	=	na	na	0,00	1,00
Average number in the system E(n)		=	na vehicles		1,7 vehicles	
Average delay		=	na seconds		14,0 seconds	
Average Vehicles per gate		=	na vehicles		0,9 vehicles	

Ruimsig Country Estate Access – PM Peak Inbound

Homes Haven Extension 65

Estate Access on Viljoen (PM Inbound)

			1 Gate		2 Gates	
Peak hour traffic volume		=	408 veh / h		408 veh / h	
Peak hour factor		=	1		1	
Average arrival rate at peak	**Q**	=	408 veh / h		408 veh / h	
Average service rate			**8,57** sec / veh		**8,57** sec / veh	
	C	=	420 services/h		420 services/h	
Traffic intensity	ϕ	=	0,97		0,97	
Number of channels	**N**	=	1 gate		2 gates	
Traffic intensity per service channel	θ	=	0,97		0,49	
Probability that n vehicles will be in the system	*n*		*P (x=n)*	*P (x ≤ n)*	*P (x=n)*	*P (x ≤ n)*
	P_0	=	0,03	0,97	0,35	0,65
	P_1	=	0,03	0,97	0,34	0,66
	P_2	=	0,03	0,97	0,16	0,84
	P_3	=	0,03	0,97	0,08	0,92
	P_4	=	0,03	0,97	0,04	0,96
	P_5	=	0,02	0,98	0,02	0,98
	P_6	=	0,02	0,98	0,01	0,99
	P_7	=	0,02	0,98	0,00	1,00
	P_8	=	0,02	0,98	0,00	1,00
	P_9	=	0,02	0,98	0,00	1,00
	P_{10}	=	0,02	0,98	0,00	1,00
	P_{11}	=	0,02	0,98	0,00	1,00
	P_{12}	=	0,02	0,98	0,00	1,00
	P_{13}	=	0,02	0,98	0,00	1,00
	P_{14}	=	0,02	0,98	0,00	1,00
	P_{15}	=	0,02	0,98	0,00	1,00
	P_{16}	=	0,02	0,98	0,00	1,00
	P_{17}	=	0,02	0,98	0,00	1,00
	P_{18}	=	0,02	0,98	0,00	1,00
Average number in the system E(n)		=	34,0 vehicles		1,1 vehicles	
Average delay		=	300,0 seconds		10,1 seconds	
Average Vehicles per gate		=	34,0 vehicles		0,6 vehicles	