

Fisantekraal Development

Transport Impact Assessment

Fisantekraal

***Final TIA
June 2025***



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SUMMARY SHEET

Report Type	Transport Impact Assessment
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Location	Fisantekraal
Client	EFG Engineers (Pty) Ltd
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It is herewith certified that this Traffic Impact Assessment has been prepared according to requirements of the South African Traffic Impact and Site Traffic Assessment Manual.

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REPORT - SUMMARY TABLE

This transport impact assessment is reported only in a summary table instead of a lengthy report to assist review and interpretation of the results. This summary table includes all the relevant information that is normally contained in a report. It should be sufficient for review and interpretation of the expected transport impacts as well as the comprehension of the required measures to mitigate the transport impact. If any more detail is required, please contact the authors.

ANNEXURES

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Transport Impact Assessment

Fisantekraal Development, Fisantekraal

1 Purpose of Study	This report summarises an assessment of the transport-related impacts expected as part of the proposed development planned in Fisantekraal. The purpose of this assessment is to identify potential constraints within the surrounding road network and recommend appropriate mitigation measures, where applicable.																																																				
2 Locality	The site consists of three development zones. The first development zone is planned on Consolidated Erven 1992, 1993 & 1997, the second development zone is planned on Erf 2006, and the third development zone is planned on Erf 1995. The three development zones are situated alongside each other, located south of the existing Fisantekraal Industrial area and Durbanville Memorial Park, west of the railway line and east of Okavango Road. Refer to Figure A1 in Annexure A for the Locality Plan.																																																				
3 Land Use	<u>Existing:</u> The three development zones are currently zoned as agricultural. <u>Proposed:</u> The proposed development will include the land use extents as summarised in Table 1. Refer to Annexure B for the proposed subdivision and zoning plans. <i>Table 1: Development Land Use Extents</i> <table> <tr> <th>Development Zone</th><th>Description</th><th>Land Use</th><th>Extent (m² GLA)</th></tr> <tr> <td rowspan="7">Consolidated Erven 1992, 1993 & 1997</td><td>Phase 1:</td><td>Warehousing & Distribution</td><td>10 589</td></tr> <tr> <td>Phase 1</td><td>Industrial Area (Park)</td><td>961</td></tr> <tr> <td>Phase 2</td><td>Warehousing & Distribution</td><td>5 527</td></tr> <tr> <td>Phase 2</td><td>Industrial Area (Park)</td><td>472</td></tr> <tr> <td>Phase 3</td><td>Warehousing & Distribution</td><td>3 111</td></tr> <tr> <td>Phase 3</td><td>Offices</td><td>3 873</td></tr> <tr> <td>Subtotal</td><td></td><td>24 533</td></tr> <tr> <td rowspan="4">Erf 2006</td><td>Type A Units</td><td>Warehousing & Distribution</td><td>11 347</td></tr> <tr> <td>Type B Units</td><td>Warehousing & Distribution</td><td>5 800</td></tr> <tr> <td>Type C Units</td><td>Warehousing & Distribution</td><td>612</td></tr> <tr> <td>Subtotal</td><td></td><td>17 759</td></tr> <tr> <td rowspan="2">Erf 1995</td><td></td><td>Industrial Area (Park)</td><td>13 068</td></tr> <tr> <td>Subtotal</td><td></td><td>13 068</td></tr> <tr> <td colspan="3">Total</td><td>55 361</td></tr> </table>			Development Zone	Description	Land Use	Extent (m ² GLA)	Consolidated Erven 1992, 1993 & 1997	Phase 1:	Warehousing & Distribution	10 589	Phase 1	Industrial Area (Park)	961	Phase 2	Warehousing & Distribution	5 527	Phase 2	Industrial Area (Park)	472	Phase 3	Warehousing & Distribution	3 111	Phase 3	Offices	3 873	Subtotal		24 533	Erf 2006	Type A Units	Warehousing & Distribution	11 347	Type B Units	Warehousing & Distribution	5 800	Type C Units	Warehousing & Distribution	612	Subtotal		17 759	Erf 1995		Industrial Area (Park)	13 068	Subtotal		13 068	Total			55 361
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4	Existing Roadways	<u>Klipheuwel Road (MR188)</u>: A Class 2 Major Arterial with one lane per direction and a posted speed limit of 80km/h, with shoulders on both sides of the road and no pedestrian sidewalks. <u>Lichtenburg Road (MR213)</u>: A Class 2 Major Arterial with one lane per direction, with shoulders on both sides of the road and no pedestrian sidewalks. <u>Okavango Road</u>: A Class 2 Major Arterial with one lane per direction and a posted speed limit of 60km/h, with shoulders on both sides of the road and a pedestrian sidewalk along the eastern side of the road. <u>Darwin Road</u>: A Class 3 Minor Arterial with one lane per direction, with a pedestrian sidewalk along the eastern side of the road and no shoulders. <u>Akademia Avenue</u>: A Class 3 Minor Arterial with two lanes per direction and a posted speed limit of 60 km/h, with pedestrian sidewalks along both sides of the road and no shoulders. <u>Pastorale Street</u>: A Class 4 Collector with one lane per direction, with pedestrian sidewalks along both sides of the road and no shoulders.																		
5	Study Intersections (Existing Control)	Table 2 summarises the intersections included in the scope of the analyses. <i>Table 2: Study Intersections</i> <table><tr><th>No.</th><th>Intersection Name</th><th>Existing Control</th></tr><tr><td>1</td><td>Klipheuwel Road/Lichtenburg Road</td><td>Priority Controlled</td></tr><tr><td>2</td><td>Klipheuwel Road/Darwin Road</td><td>Priority Controlled</td></tr><tr><td>3</td><td>Darwin Road/Pastorale Avenue</td><td>Priority Controlled</td></tr><tr><td>4</td><td>Klipheuwel Road/Okavango Road</td><td>Traffic Signal</td></tr><tr><td>5</td><td>Okavango Road/Akademia Avenue</td><td>Traffic Signal</td></tr></table> Refer to Figure A2 in Annexure A for the existing lane configuration and intersection control at the study intersections.	No.	Intersection Name	Existing Control	1	Klipheuwel Road/Lichtenburg Road	Priority Controlled	2	Klipheuwel Road/Darwin Road	Priority Controlled	3	Darwin Road/Pastorale Avenue	Priority Controlled	4	Klipheuwel Road/Okavango Road	Traffic Signal	5	Okavango Road/Akademia Avenue	Traffic Signal
No.	Intersection Name	Existing Control																		
1	Klipheuwel Road/Lichtenburg Road	Priority Controlled																		
2	Klipheuwel Road/Darwin Road	Priority Controlled																		
3	Darwin Road/Pastorale Avenue	Priority Controlled																		
4	Klipheuwel Road/Okavango Road	Traffic Signal																		
5	Okavango Road/Akademia Avenue	Traffic Signal																		
6	Analyses Hours	The traffic analyses are based on typical weekday a.m. and p.m. peak hours.																		
7	Approved Developments / Latent Rights	Several developments are planned in the site’s vicinity. A vicinity map of the planned developments relative to the proposed development can be found in Figure A3 in Annexure A. The latest amendments for the approved developments were included, along with the planned Durbanville Industrial development (ITS Ref. 4541) on Erf 1991 and the Remainder of Portion 5 of Farm 724, due to its proximity and shared access route with the proposed development. Table 3 summarises the development trips included in the proposed development's Background and Total Traffic Conditions scenarios.																		

Table 3: Background Developments

Development	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
	In	Out	Total	In	Out	Total
Glass Factory on Remainder Farm 180, Portion 3 of Farm 180 and Portion 13 of Farm 168*	44	15	58	15	44	58
Industrial Development on Erf 1690	214	71	285	71	214	285
Groot Phesantekraal Phase 4 Development (Remaining Phase 4.1 & Phase 4.2)	1 493	1 172	2 665	1 437	1 579	3 017
Groot Phesantekraal Phase 5	260	256	516	796	709	1 505
Industrial Development on Erf 1693 & 1870	91	39	130	33	97	130
Bella Riva (Phase 1)	328	832	1 160	1 016	590	1 606
Greenville Garden City (Estimated construction rate)**	162	357	519	363	228	590
Durbanville Industrial	1 268	544	1 812	455	1 357	1 812
Total	3 860	3 286	5 333	4 186	4 818	9 003

* Note 1: Based on latest proposal which includes a 135 867 m² GLA glass factory

** Note 2: Based on an average construction estimate of 343 units built annually

8 Future Roadways

Various improvements are planned for the road network in the area. The known road network improvements which are relevant to this study area include:

- R300 northern extension
- Dualling of Klipheuwel Road between Brackenfell Boulevard and Darwin Road
- Extension of Darwin Road to Amadeus Drive
- Dualling of Okavango Road
- Lucullus Road northern and southern extension
- East-West Link Road to Okavango Road

The above future roads from the City of Cape Town's *Public Right of Way Road Network Classification* are also illustrated in **Figure A3** in **Annexure A**. It is expected that the construction of any one of these future roads/links will have a significant impact on the traffic patterns and distribution in the area.

Based on the recommendations from the approved developments, the following intersection upgrades were proposed at the relevant study intersections:

- Intersection 1: Klipheuwel Road/Lichtenburg Road
 - o Northbound – Construct an additional through lane and dedicated right-turn lane.
 - o Southbound – Construct an additional through lane and a dedicated left-turn lane.
 - o Westbound – Construct a dedicated right-turn lane and left-turn slip lane.
 - o Intersection control – Install traffic signal.
- Intersection 2: Klipheuwel Road/Darwin Road
 - o Northbound – Construct an additional through lane.
 - o Southbound – Construct an additional through lane.
 - o Westbound – Construct a dedicated right-turn lane and left-turn slip lane.
 - o Intersection control – Install traffic signal.
- Intersection 3: Darwin Road/Pastorale Avenue
 - o Northbound – Construct a shared through and left-turn lane.
 - o Southbound – Construct a shared through and right-turn lane.
 - o Eastbound – Construct a shared right- and left-turn lane.
 - o Intersection control – Priority controlled.
- Intersection 4: Klipheuwel Road/Okavango Road
 - o Northbound – Construct an additional through lane (already constructed).
 - o Southbound – Construct an additional through lane.
 - o Westbound – Construct an additional dedicated right-turn lane (already constructed).
- Intersection 5: Klipheuwel Road/Akademia Avenue
 - o Northbound – Construct an additional through lane and a dedicated left-turn lane (already constructed).
 - o Southbound – Construct a dedicated right-turn lane (already constructed)
 - o Eastbound – Construct separate right and left-turn lanes (already constructed).
 - o Intersection control – Install a traffic signal (already in place).

Therefore, the impact of the future road network and the intersection upgrade recommendations from the approved developments are considered in the traffic analyses for the proposed development.

ITS completed an Access Management Plan (AMP) for Klipheuwel Road (MR188) in November 2010. Based on the recommendations from the MR188 AMP, roundabouts were proposed along the current and proposed future intersections/accesses along the extension of Darwin Road (see **Figure A4** in

	Annexure A). Based on the City's standards, a 30m to 40m inscribe circle diameter (ICD) roundabout is recommended for single-lane Class 3 roads and a 45m to 55m ICD roundabout is recommended for dual-lane Class 3 roads. It is important to note that the alignment of the Class 4 Internal Road #2 has changed since 2010, and the updated alignment is shown in Figure A4 in Annexure A.
9 Scenarios Analysed	A five-year horizon period was considered for the proposed development. Therefore, the following traffic scenarios were assessed: • 2024 Existing Traffic Conditions: Based on 2024 a.m. and p.m. peak hour traffic counts. • 2029 Background Traffic Conditions: Based on 2024 Existing Traffic Conditions volumes, plus 100% of the Background development trips. • 2029 Total Traffic Conditions: Based on 2029 Background Traffic Conditions volumes, plus the proposed development trips.
10 Existing Traffic Conditions	Traffic surveys were done to determine the existing peak-hour traffic volumes at the study intersections. The surveys were conducted during weekday a.m. and p.m. peak periods in March and April 2024. The operational analyses were done according to the procedures outlined in the Highway Capacity Manual (HCM), using Traffix 8.0 software. The study intersections were analysed to determine the level of service (LOS), delay per vehicle (in seconds), and volume-to-capacity (V/C) ratio at each study intersection during both peak periods. During a site visit, queues were observed at the Klipheuwel Road/Lichtenburg Road intersection (Intersection 1) due to the existing shared through and turning lane configurations. As a result, the through movements along Klipheuwel Road and left turners along Lichtenburg Road make use of the shoulders to pass queued vehicles. The 2024 Existing Traffic Conditions capacity analysis results are provided in Figure A5.1 in Annexure A. Based on the capacity analysis results, the following intersections currently experience capacity constraints: • <u>Intersection 1: Klipheuwel Road/Lichtenburg Road</u> This intersection currently operates at a LOS F, due to a delay of greater than 50 seconds and a V/C ratio of greater than 1.0 during both peak hours. <i>Mitigation:</i> - o Northbound – Construct a dedicated right-turn lane. - o Southbound – Construct a dedicated left-turn lane. - o Westbound – Construct a dedicated right-turn lane. - o Intersection control – Warrants a traffic signal upgrade.

	The existing traffic volumes at the Klipheuwel Road/Lichtenburg Road intersection warrant the traffic signal upgrade. Once this upgrade is implemented, the intersection will operate at an acceptable LOS A/B, as shown in Figure A5.2 in Annexure A.
11 Background Traffic Conditions	The 2029 Background Traffic Conditions are based on the 2024 Existing Traffic Conditions volumes, plus the approved development trips. This traffic scenario assumes that the upgrades recommended in the 2024 Existing Traffic Conditions will be in place. Given the constraints of the existing road network, and to prevent any future intersection upgrades from becoming abortive, the full development of the Durbanville Industrial development will require the extension of Darwin Road to Amadeus Drive. With the Darwin Road extension in place, the Background Traffic Conditions assume that the future developments within the existing Fisantekraal Industrial area will also be redistributed from Okavango Road to the extension. The Background Traffic Conditions includes 100% of the Background development trips. As a result, over 9 000 peak-hour trips will be added to the road network, which will require the following intersection upgrades: • <u>Intersection 1: Klipheuwel Road/Lichtenburg Road</u> <i>Mitigation:</i> - o Northbound – Construct an additional dedicated right-turn lane. - o Westbound – Construct a left-turn slip lane. • <u>Intersection 2: Klipheuwel Road/Darwin Road</u> <i>Mitigation:</i> - o Northbound – Construct an additional through lane. - o Southbound – Construct an additional through lane. - o Westbound – Construct a dedicated right-turn lane and shared right- and left-turn lane. - o Intersection control – Warrants a traffic signal upgrade. • <u>Intersection 3: Darwin Road/Pastorale Avenue</u> <i>Mitigation:</i> - o Intersection control – Construct a single-lane roundabout. • <u>Intersection 4: Klipheuwel Road/Okavango Road</u> <i>Mitigation:</i> - o Southbound – Construct an additional through lane.

	The 2029 Background Traffic Conditions intersection upgrades and capacity analysis results are provided in Figure A6 in Annexure A. Based on the capacity analysis results, all the study intersections are expected to operate acceptably with the proposed upgrades.																																									
12 Trip Generation Rates and Development Trips	All trip generation rates used to determine the expected development trips are from <i>TMH 17 South African Trip Data Manual</i> (COTO, 2013). The estimated development trips for the proposed development are summarised in Table 4. <i>Table 4: Estimated Development Trips</i> <table><tr><th rowspan="2">Development Zone</th><th colspan="3">Weekday a.m. Peak Hour</th><th colspan="3">Weekday p.m. Peak Hour</th></tr><tr><th>In</th><th>Out</th><th>Total</th><th>In</th><th>Out</th><th>Total</th></tr><tr><td>Consolidated Erven 1992, 1993 & 1997</td><td>137</td><td>53</td><td>190</td><td>63</td><td>127</td><td>190</td></tr><tr><td>Erf 2006</td><td>53</td><td>36</td><td>89</td><td>40</td><td>49</td><td>89</td></tr><tr><td>Erf 1995</td><td>74</td><td>31</td><td>105</td><td>26</td><td>79</td><td>105</td></tr><tr><td>Total</td><td>264</td><td>120</td><td>384</td><td>129</td><td>255</td><td>384</td></tr></table> Further details for the trip generation rates and development trips for the proposed development are provided in Tables C1 and C2 in Annexure C.	Development Zone	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour			In	Out	Total	In	Out	Total	Consolidated Erven 1992, 1993 & 1997	137	53	190	63	127	190	Erf 2006	53	36	89	40	49	89	Erf 1995	74	31	105	26	79	105	Total	264	120	384	129	255	384
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Total	264	120	384	129	255	384																																				
13 Trip Distribution	The trip distribution for the proposed development was determined from Tracker probe data for the existing Fisantekraal Industrial area. The probe data is as follows: • 5% to/from Malmesbury via Klipheuwel Road • 20% to/from Paarl via Lichtenburg Road • 25% to/from Durbanville via Klipheuwel Road • 50% via Okavango Road However, with the Darwin Road extension in place, it is expected that the development trips along Okavango Road will be distributed along this extension. Therefore, the expected trip distribution is as follows: • 5% to/from Malmesbury via Klipheuwel Road • 20% to/from Paarl via Lichtenburg Road • 25% to/from Durbanville via Klipheuwel Road • 50% via the extension of Darwin Road The trip distribution and assignment with the Darwin Road extension in place are illustrated in Figure A7 in Annexure A.																																									

14 Site Access	Access to the three development zones is proposed via the Darwin Road/Pastorale Avenue intersection, which will also serve Portion 7 of the Durbanville Industrial development on Erf 1991. A 17m Right of Way Servitude is proposed to provide access to both developments. This servitude will extend across Erf 1990. Refer to Figure A8 in Annexure A for the indicative alignment of the proposed servitude.
15 Total Traffic Conditions	The 2029 Total Traffic Conditions assumes that the upgrades recommended in the 2029 Background Traffic Conditions will be in place. The addition of the proposed development trips on the road network will require the following upgrade intersection upgrades: • <u>Intersection 2: Klipheuwel Road/Darwin Road</u> <i>Mitigation:</i> ○ Westbound – Construct a left-turn slip lane and convert the shared right- and left-turn lane to a dedicated right-turn lane. The 2029 Total Traffic Conditions intersection upgrades and capacity analysis results are provided in Figure A9 in Annexure A. Based on the capacity analysis results, all the study intersections are expected to operate acceptably with the proposed upgrades. The construction of the R300 northern extension, along with new road links such as the Darwin Road extension, Lucullus Road extensions, and East-West links, is expected to reduce traffic demand at some of the study intersections. To prevent any further intersection upgrades from being abortive in the future, it is recommended that the construction of these roads be prioritised. Additionally, the Cape Winelands Airport is expected to influence traffic distribution, particularly for industrial and warehousing developments. As the airport expands, freight movement between surrounding developments (such as the proposed development) and the airport is likely to increase. The construction of the east-west link between Lucullus and Darwin by Greenville, in future, could accommodate this increase in traffic patterns and alleviate pressure from Klipheuwel Road.
16 Pedestrians and Cyclists	<u>Existing Facilities:</u> During a site visit, it was noted that there is numerous pedestrian and cyclist activity along Klipheuwel Road. Since no formalised facilities are present, these pedestrians and cyclists use the shoulders along Klipheuwel Road. Currently, there are sidewalks available along the following roads/intersections: • Darwin Road: Sidewalk along the eastern side of the road. • Klipheuwel Road/Okavango Road intersection: Sidewalks along the intersection. • Okavango Road: Sidewalk along the eastern side of the road.

	• Amadeus Avenue: Sidewalks along both sides of the road. • Pastoral Avenue: Sidewalks along both sides of the road. <u>Proposed Facilities:</u> According to the City of Cape Town’s future non-motorised transport network, Klipheuwel Road is planned as a Class 3-Prioritised cycle route and a Class 4 cycle route is proposed along the extension of Darwin Road as shown in Figure 1.  <i>Figure 1: CoCT Cycle Routes</i> As part of the Durbanville Industrial development, the following facilities were recommended along the extension of Darwin Road: • Construct a minimum 2m-wide pedestrian sidewalk and a minimum 1.5m-wide cycle lane along the road extension. • Install street lighting along the road extension. However, the final cross-section for Darwin Road must be agreed upon with the City during the design stage. For the proposed development, it is recommended to construct a minimum 1.8m wide pedestrian sidewalk and street lighting along the Class 4 Internal Road #2. Refer to Figure A4 in Annexure A for the location of Internal Road #2
17 Public Transport	<u>Existing Facilities:</u> During a site visit, it was observed that minibus taxis (MBT) and buses (GABS) operate along the existing routes along Klipheuwel and Lichtenburg Roads (see Figure 2). Since no formal public transport facilities are available in the immediate vicinity, these vehicles use the road shoulders for passenger boarding and alighting.



Figure 2: CoCT Existing Pubic Transport Routes

There is currently also an existing railway line to the east of the proposed industrial development. However, this railway line is mainly used for freight transport.

Proposed Facilities:

As part of the Durbanville Industrial development, the following facilities were recommended:

- Construct minibus taxi/bus embayments on both downstream sides of the Klipheuwel/Darwin Road intersection.
- Construct minibus taxi embayments along the extension of Darwin Road on both downstream sides of the development access roundabouts.

The public transport embayments along Darwin Road must be strategically placed to facilitate boarding and alighting of passengers, and the location of these embayments must be concluded with the City during the detail design stage of Darwin Road.

Due to the proposed facilities along Darwin Road, no additional public transport facilities are recommended for the proposed development.

18 Conclusion & Recommendations

This report summarises an assessment of the transport-related impacts expected as part of the proposed development planned in Fisantekraal. Based on this assessment, the following can be concluded.

Land Use Extents:

The proposed development will include the following land use extents:

Development Zone	Description	Land Use	Extent (m ² GLA)
Consolidated Erven 1992, 1993 & 1997	Phase 1:	Warehousing & Distribution	10 589
	Phase 1	Industrial Area (Park)	961
	Phase 2	Warehousing & Distribution	5 527
	Phase 2	Industrial Area (Park)	472
	Phase 3	Warehousing & Distribution	3 111
	Phase 3	Offices	3 873
	Subtotal		24 533
Erf 2006	Type A Units	Warehousing & Distribution	11 347
	Type B Units	Warehousing & Distribution	5 800
	Type C Units	Warehousing & Distribution	612
	Subtotal		17 759
Erf 1995		Industrial Area (Park)	13 068
	Subtotal		13 068
Total			55 361

Existing Traffic Conditions:

The Existing Traffic Conditions are based on 2024 weekday peak-hour traffic volumes, and the existing intersection geometries and controls. The following intersection upgrades are recommended for this scenario:

- Intersection 1: Klipheuwel Road/Lichtenburg Road
 - o Northbound – Construct a dedicated right-turn lane.
 - o Southbound – Construct a dedicated left-turn lane.
 - o Westbound – Construct a dedicated right-turn lane.
 - o Intersection control – Warrants a traffic signal upgrade.

Expected Development Trips:

The proposed development is expected to generate the following peak-hour trips:

Development Zone	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
	In	Out	Total	In	Out	Total
Consolidated Erven 1992, 1993 & 1997	137	53	190	63	127	190
Erf 2006	53	36	89	40	49	89
Erf 1995	74	31	105	26	79	105
Total	264	120	384	129	255	384

Background Traffic Conditions:

The 2029 Background Traffic Conditions are based on the 2024 Existing Traffic Conditions volumes, plus 100% of the Background development trips. This traffic scenario assumes that the upgrades recommended in the 2024 Existing Traffic Conditions will be in place. The following intersection upgrades are recommended for this scenario:

- Intersection 1: Klipheuwel Road/Lichtenburg Road
 - o Northbound – Construct an additional dedicated right-turn lane.
 - o Westbound – Construct a left-turn slip lane.
- Intersection 2: Klipheuwel Road/Darwin Road
 - o Northbound – Construct an additional through lane.
 - o Southbound – Construct an additional through lane.
 - o Westbound – Construct a dedicated right-turn lane and shared right- and left-turn lane.
 - o Intersection control – Warrants a traffic signal upgrade.
- Intersection 3: Darwin Road/Pastorale Avenue
 - o Intersection control – Construct a single-lane roundabout.
- Intersection 4: Klipheuwel Road/Okavango Road
 - o Southbound – Construct an additional through lane.

Site Access:

Access to the three development zones is proposed via the Darwin Road/Pastorale Avenue intersection, which will also serve Portion 7 of the Durbanville Industrial development on Erf 1991. A 17m Right of Way Servitude is proposed to provide access to both developments. This servitude will extend across Erf 1990.

Total Traffic Conditions:

The 2029 Total Traffic conditions are based on Background Traffic Conditions volumes, plus the proposed development trips. This traffic scenario assumes that the upgrades recommended in the 2029 Background Traffic Conditions will be in place. The following intersection upgrades are recommended for this scenario:

- **Intersection 2: Klipheuwel Road/Darwin Road**
 - o Westbound – Construct a left-turn slip lane and convert the shared right- and left-turn lane to a dedicated right-turn lane.

Prioritising the R300 northern extension, Darwin Road, Lucullus Road, and East-West links will help reduce traffic demand on the existing road network and avoid abortive intersection upgrades in the future. The Cape Winelands Airport expansion is also expected to increase freight movement, impacting industrial and warehousing developments in the surrounding area, such as the proposed development.

Non-Motorised Transport:

For the Durbanville Industrial development, it was proposed that the Darwin Road extension include a minimum 2m pedestrian sidewalk, 1.5m cycle lane, and street lighting, with the final cross-section to be confirmed with the City. It is recommended that the proposed development include a minimum 1.8m pedestrian sidewalk and street lighting along the Class 4 Internal Road #2.

Public Transport:

For the Durbanville Industrial development, it was proposed that minibus taxi/bus embayments be constructed downstream at the Klipheuwel/Darwin Road intersection and the development access roundabouts along the extension of Darwin Road. Their final locations will be determined with the City during the detail design stage. No additional public transport facilities are recommended for the proposed development.

Conclusion:

Based on the findings of this assessment, it can be concluded that the impact of the proposed development could be sufficiently mitigated, provided that the upgrades as recommended in this report are in place. Hence, it is recommended that this development be considered for approval from a transport perspective.

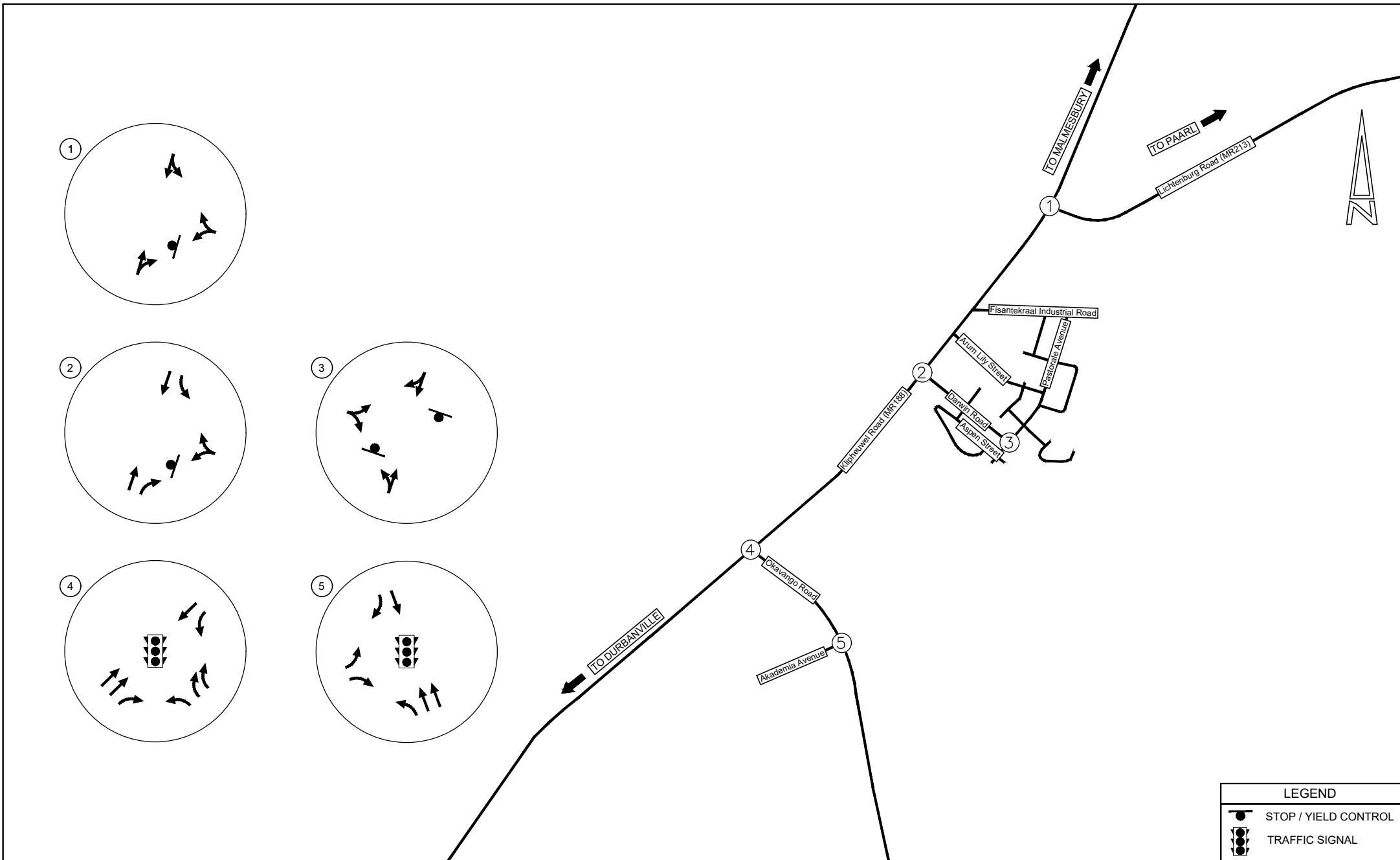
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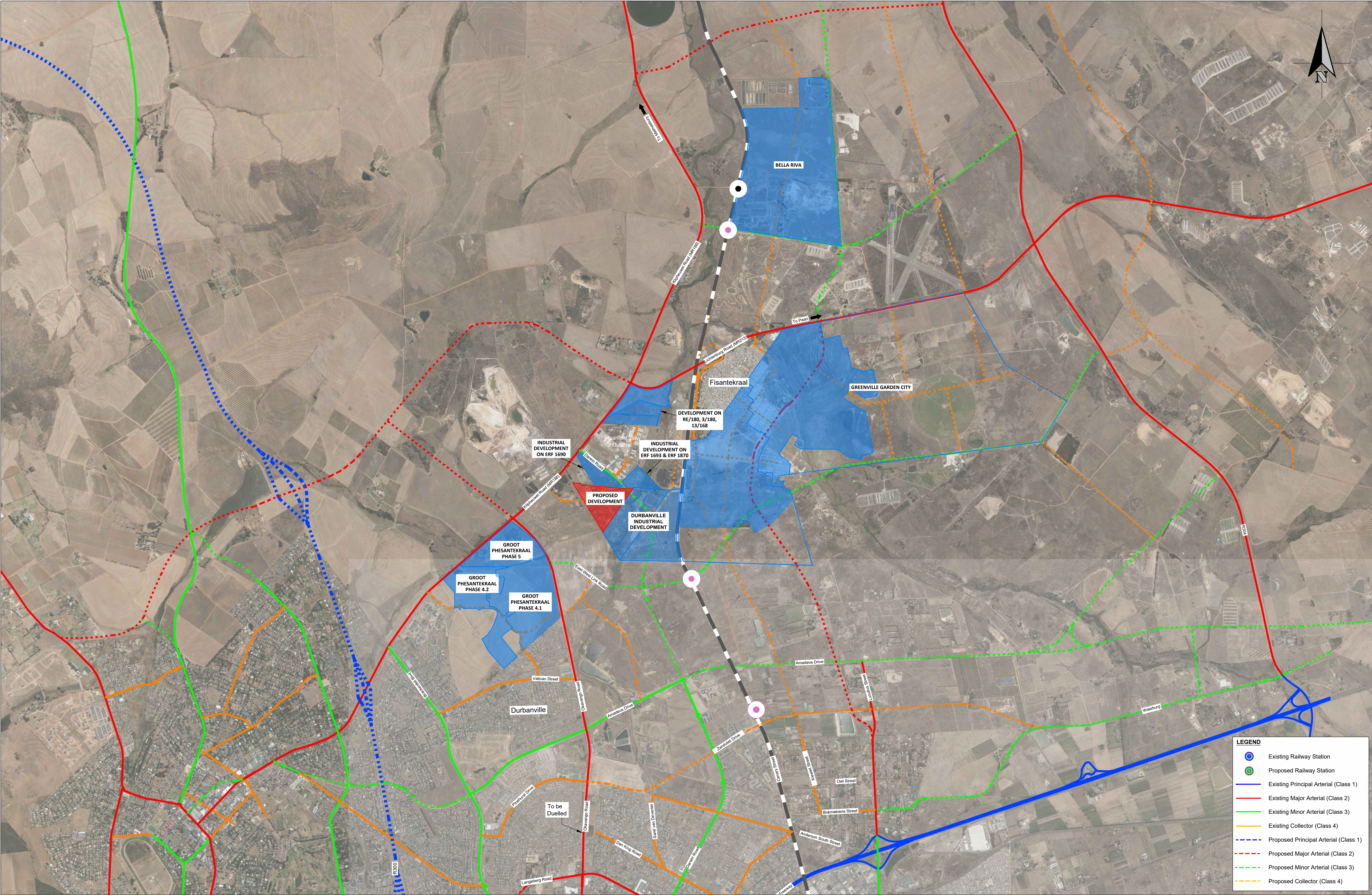
1. Committee of Transport Officials (COTO). *TRH 26 South African Road Classification and Access Management Manual*. Version 1.0. September 2013.
2. Committee of Transport Officials (COTO). *TMH 17 South African Trip Data Manual*. Version 1.01. September 2013.
3. City of Cape Town. *Standards and Guidelines for Roads & Stormwater*. Version 3.0. February 2022
4. City of Cape Town. *Integrated Public Transport Network Plan 2032*. May 2014.
5. City of Cape Town. *Guidelines for the Public Transport Component of Transport Impact Assessments*. December 2001.
6. Innovative Transport Solutions (ITS). *Durbanville Industrial Development*. 4541 TIA Farm 168 Durbanville. November 2024.
7. Innovative Transport Solutions (ITS). *Klipheuwel Road (MR188) - Access Management Plan*. ITS 2856 Access Management Plan Klipheuwel (R302). November 2010.
8. Innovative Transport Solutions (ITS). *Masterplan Durbanville Industria*. ITS 2487 Roads Masterplan, Phesantekraal. November 2008.
9. Innovative Transport Solutions (ITS). *Transport Impact Study – Industrial Development Planned on Remainder of Farm 180 and Portion 3 of Farm 180 Fisantekraal*. ITS 3749.2 Farm 180 Fisantekraal Phasing TIA. July 2021.
10. Innovative Transport Solutions (ITS). *Transport Statement – Industrial Development on Erf 1690, Fisantekraal – Durbanville*. ITS 3790 TIA Erf 1690, Fisantekraal. October 2016.
11. Innovative Transport Solutions (ITS). *Groot Phesantekraal Phase 4 Development*. ITS 3932 Groot Phesantekraal Phase 4. December 2018.
12. Innovative Transport Solutions (ITS). *Transport Impact Assessment Update – Groot Phesantekraal Phase 4.2(Revision 2)*. ITS 3932.6 TIA Groot Phesantekraal Phase 4.2 Update. September 2024.
13. Innovative Transport Solutions (ITS). *Groot Phesantekraal Phase 5: Convenience Centre*. ITS 4071 Groot Phesantekraal Phase 5. March 2022.
14. Innovative Transport Solutions (ITS). *Groot Phesantekraal Phase 5 Application (Case No. 1500003460 & 1500111519) – Amendment Of Approval Conditions, Site Development Plan, Landscape Plan And Shared Parking Motivation: Trip Generation Update (Revision 2)*. ITS 4071.2 Phesantekraal Phase 5 Ad Hoc Assistance. October 2024.
15. Innovative Transport Solutions (ITS). *Addendum Letter – Transport Statement for the Industrial Development Planned on Erven 1693 & 1870, Fisantekraal*. ITS 4152 Erven 1693 and 1870 TIA, Fisantekraal – Update. April 2020.
16. Provincial Administration Western Cape: Transport Branch. *Road Access Guidelines*. Second Edition. September 2002.
17. Sturgeon Consulting. *Update of the Transport Impact Assessment for the Proposed Bella Riva Lifestyle Estate Development*. STUR0248. February 2022.
18. Transportation Research Board. *Highway Capacity Manual (HCM)*. 2000.
19. Transport and Urban Development Authority (TDA). *Public Right of Way – Road Network: Metropolitan Area*. July 2017.

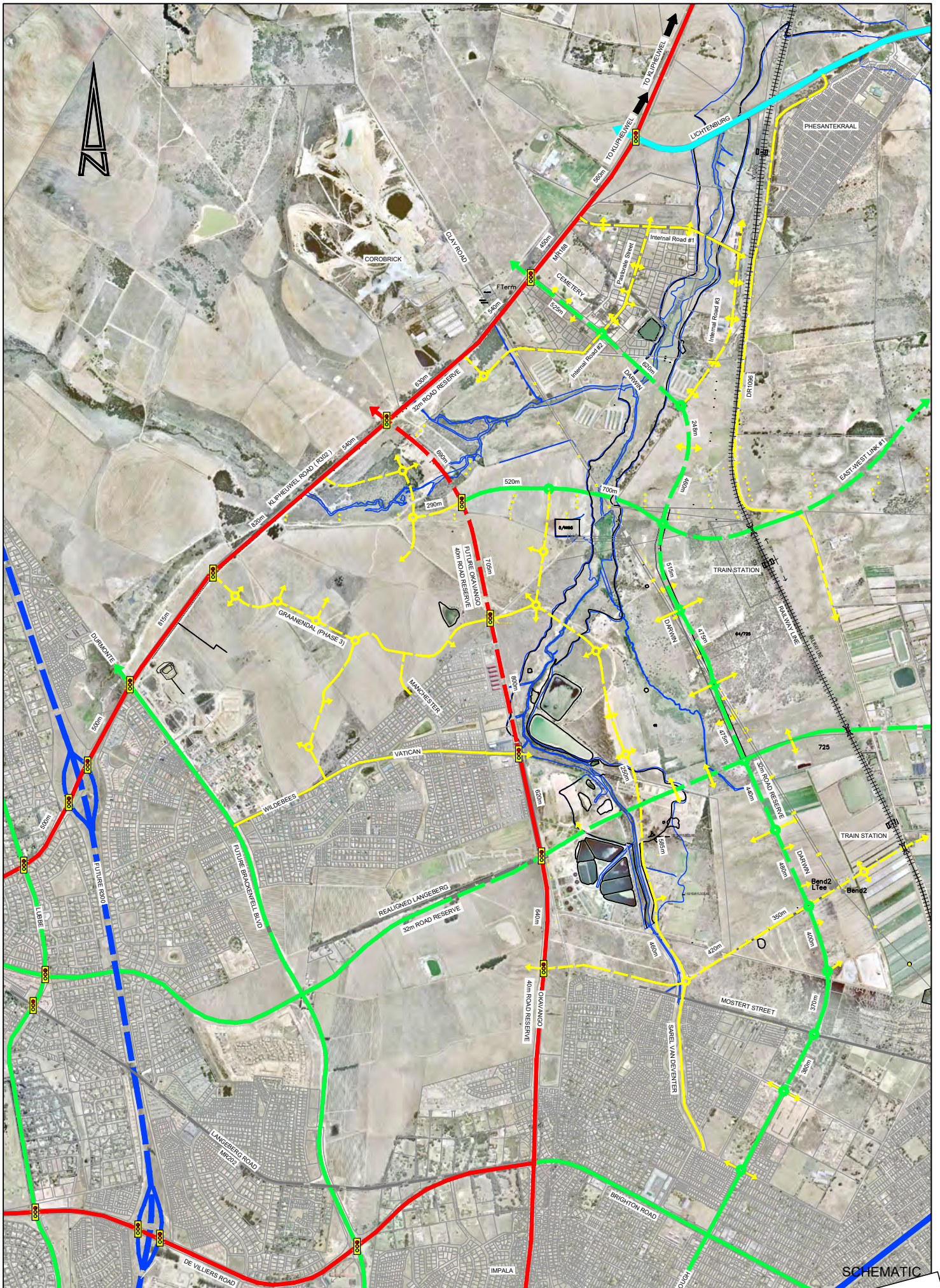
Annexure A

Figures





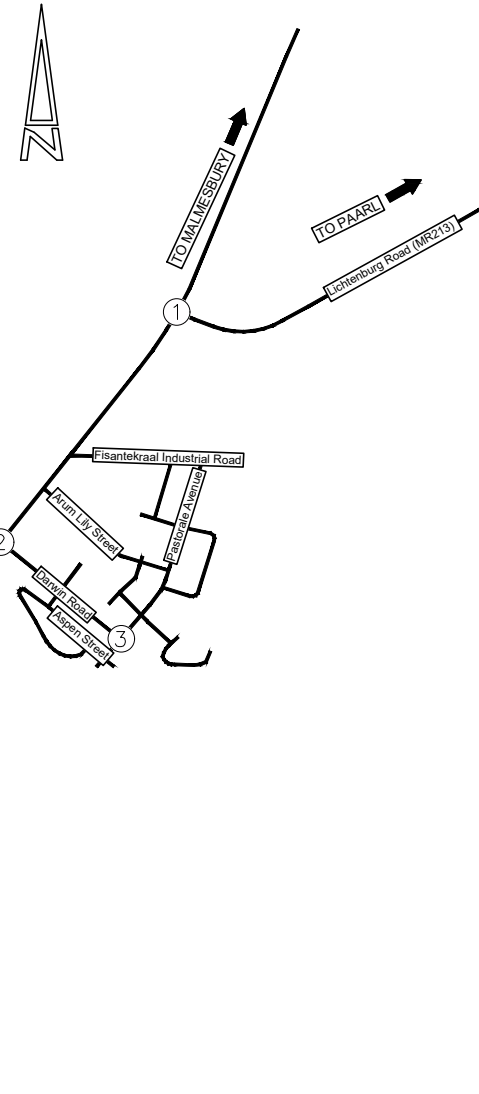




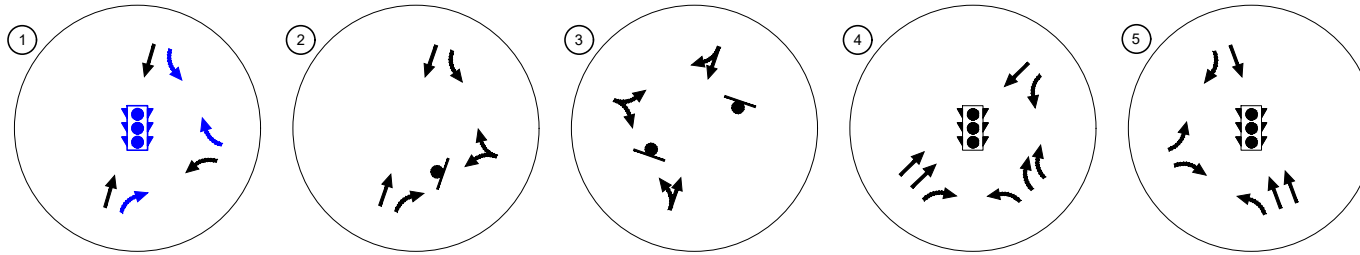
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LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALISED) / CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALISED)
Del = INTERSECTION AVERAGE DELAY (SIGNALISED) / CRITICAL MOVEMENT DELAY (UNSIGNALISED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

AM PEAK HOUR:

PM PEAK HOUR:

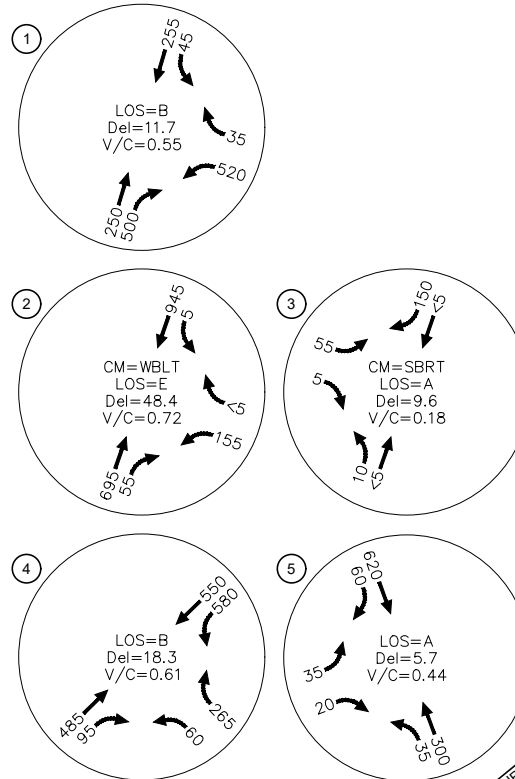
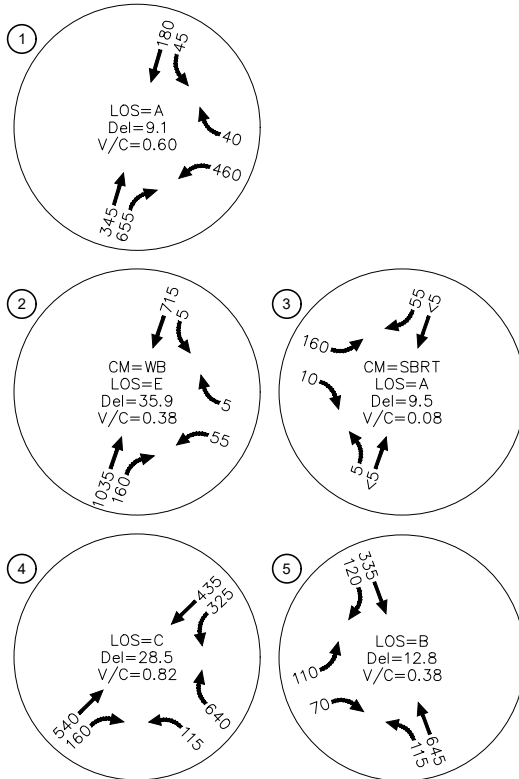


LANE CONFIGURATION AND INTERSECTION CONTROL:

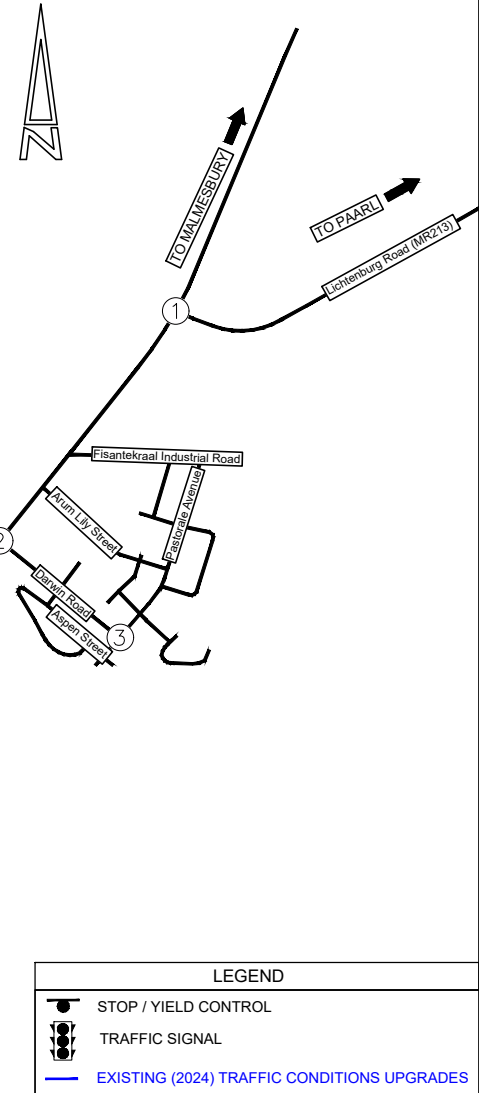


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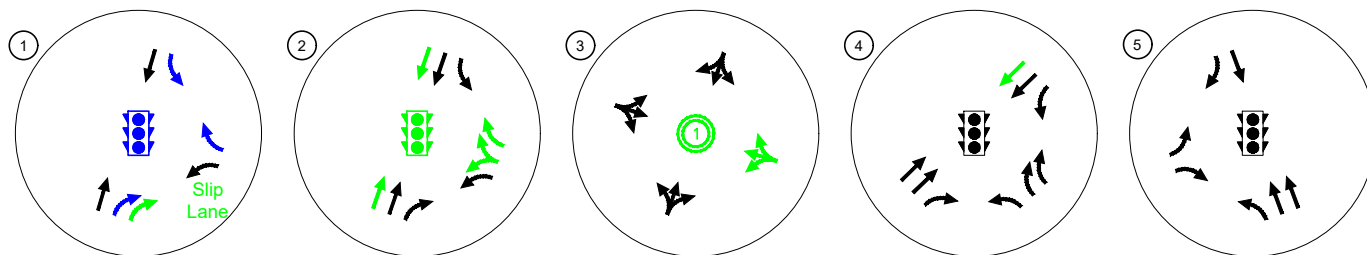


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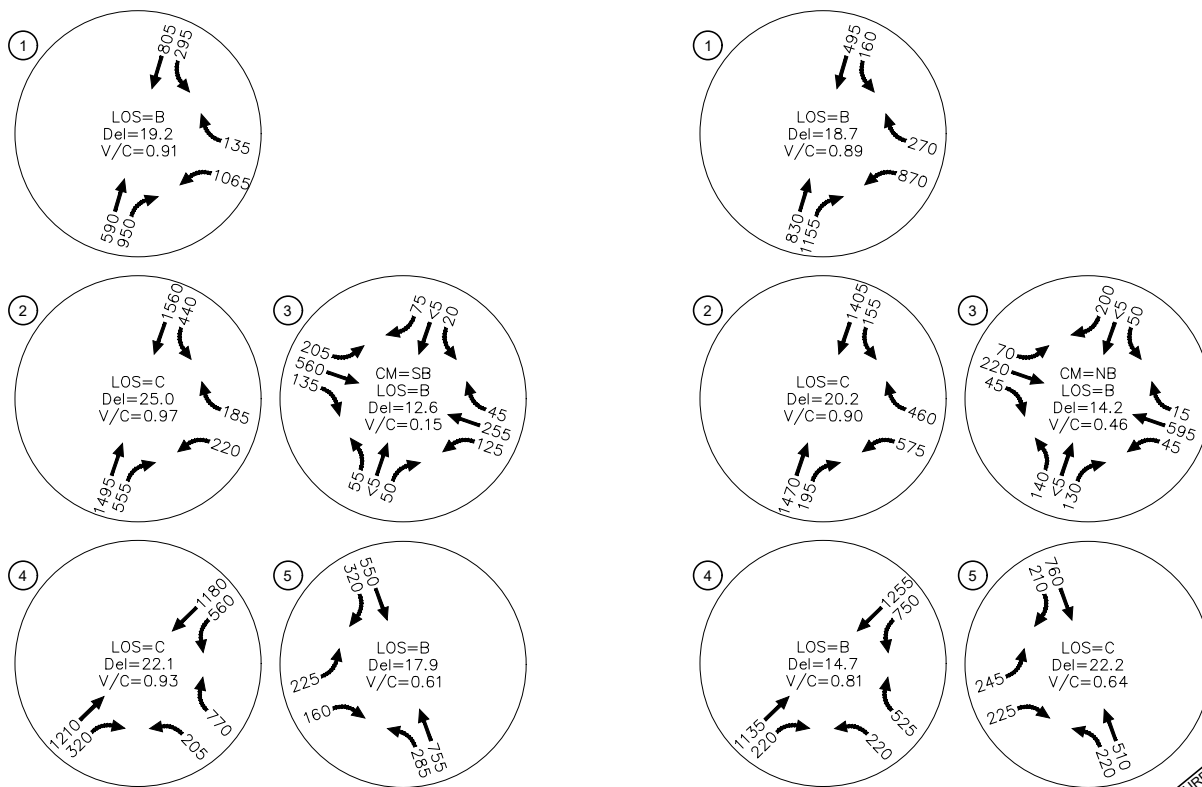
LEGEND	
	STOP / YIELD CONTROL
	TRAFFIC SIGNAL
	EXISTING (2024) TRAFFIC CONDITIONS UPGRADES

LANE CONFIGURATION AND INTERSECTION CONTROL:



AM PEAK HOUR:

PM PEAK HOUR:



LEGEND

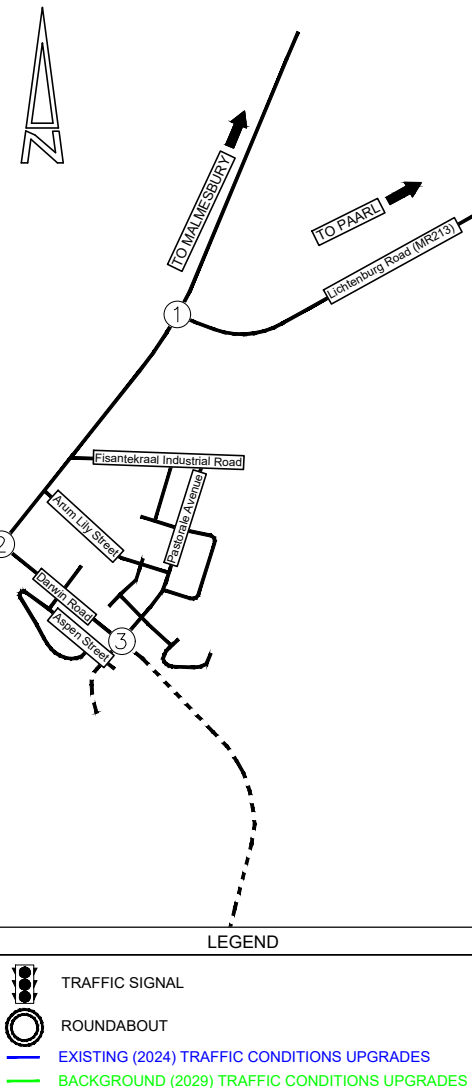
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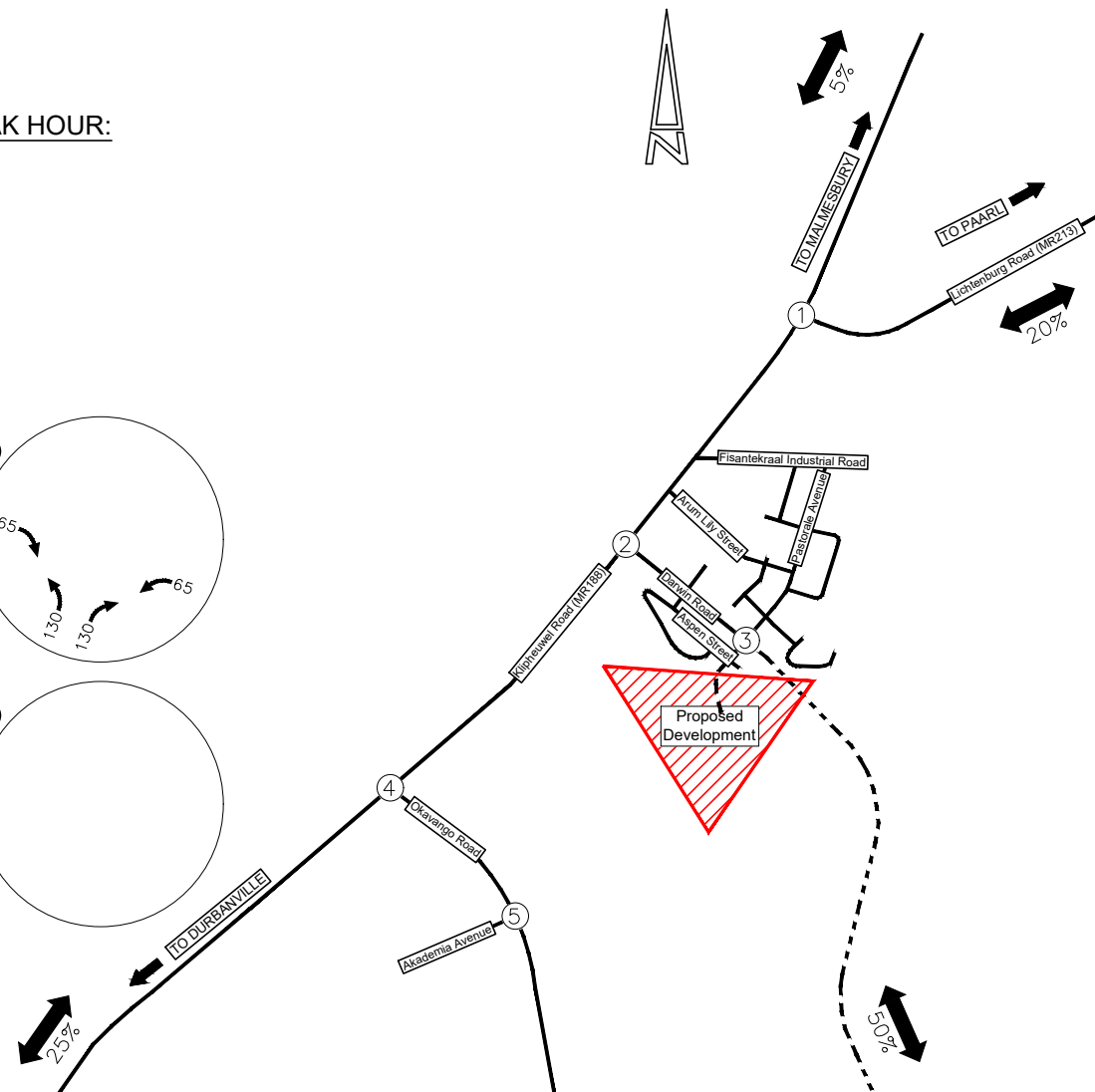
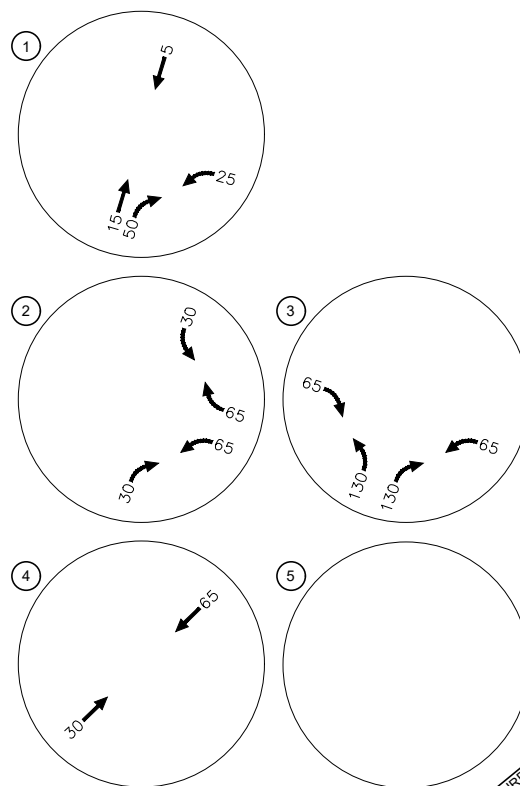
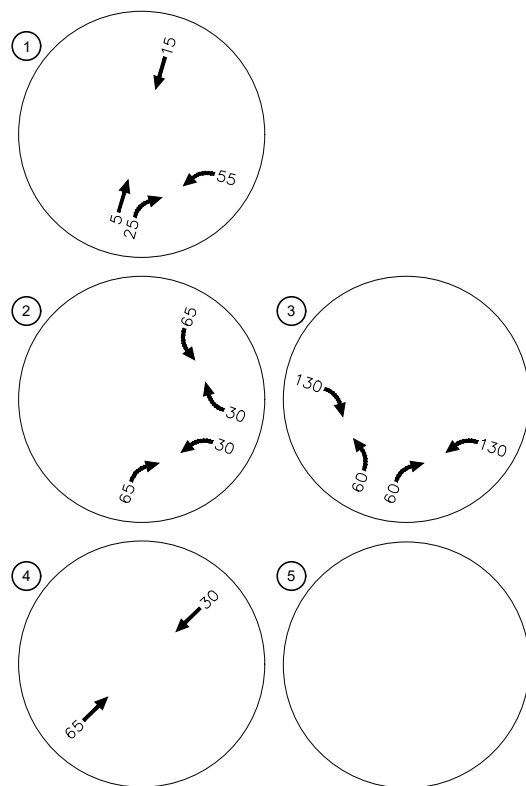
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

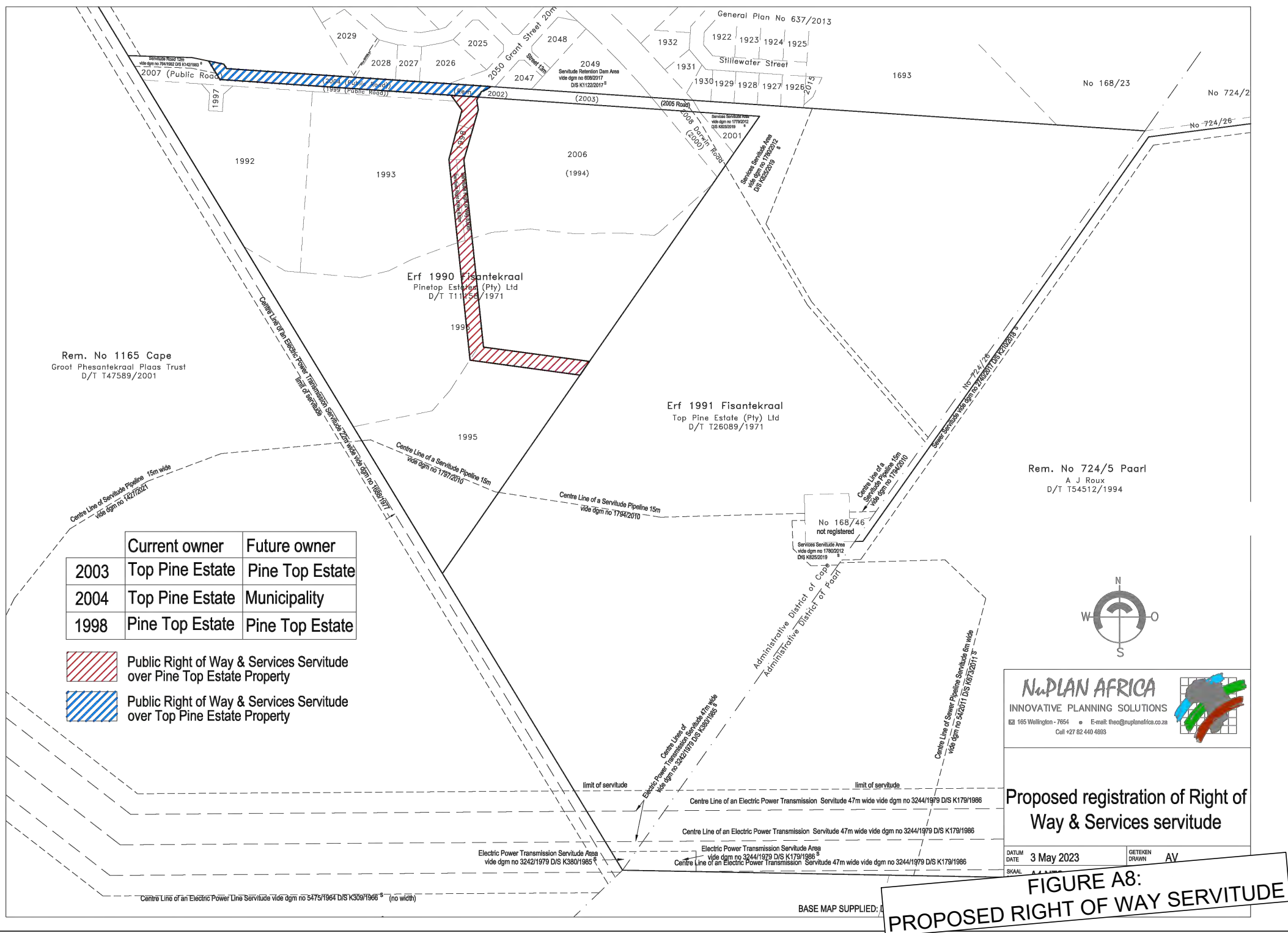


EXPECTED DEVELOPMENT TRIPS			
PEAK PERIOD	IN	OUT	TOTAL
AM PEAK HOUR	264	120	384
PM PEAK HOUR	129	255	384

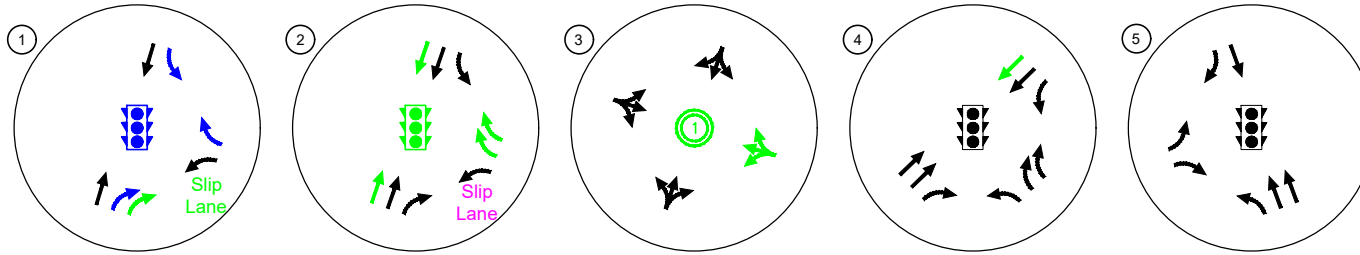
AM PEAK HOUR:

PM PEAK HOUR:



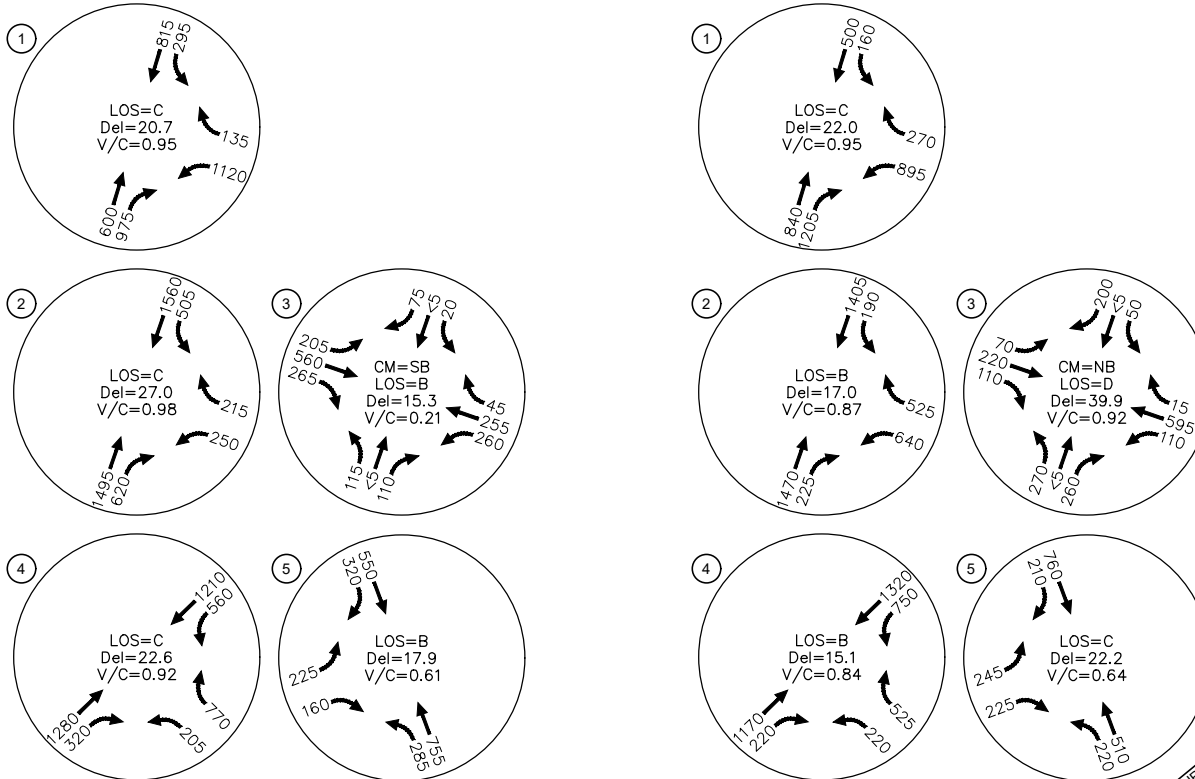


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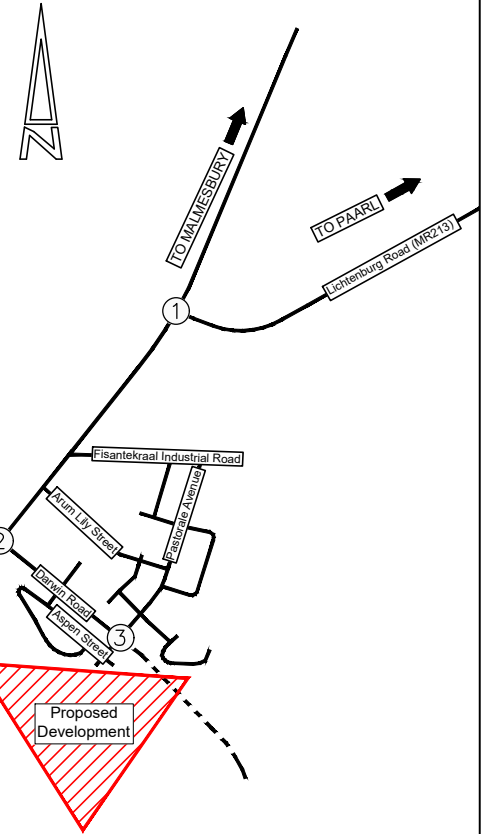


AM PEAK HOUR:

PM PEAK HOUR:



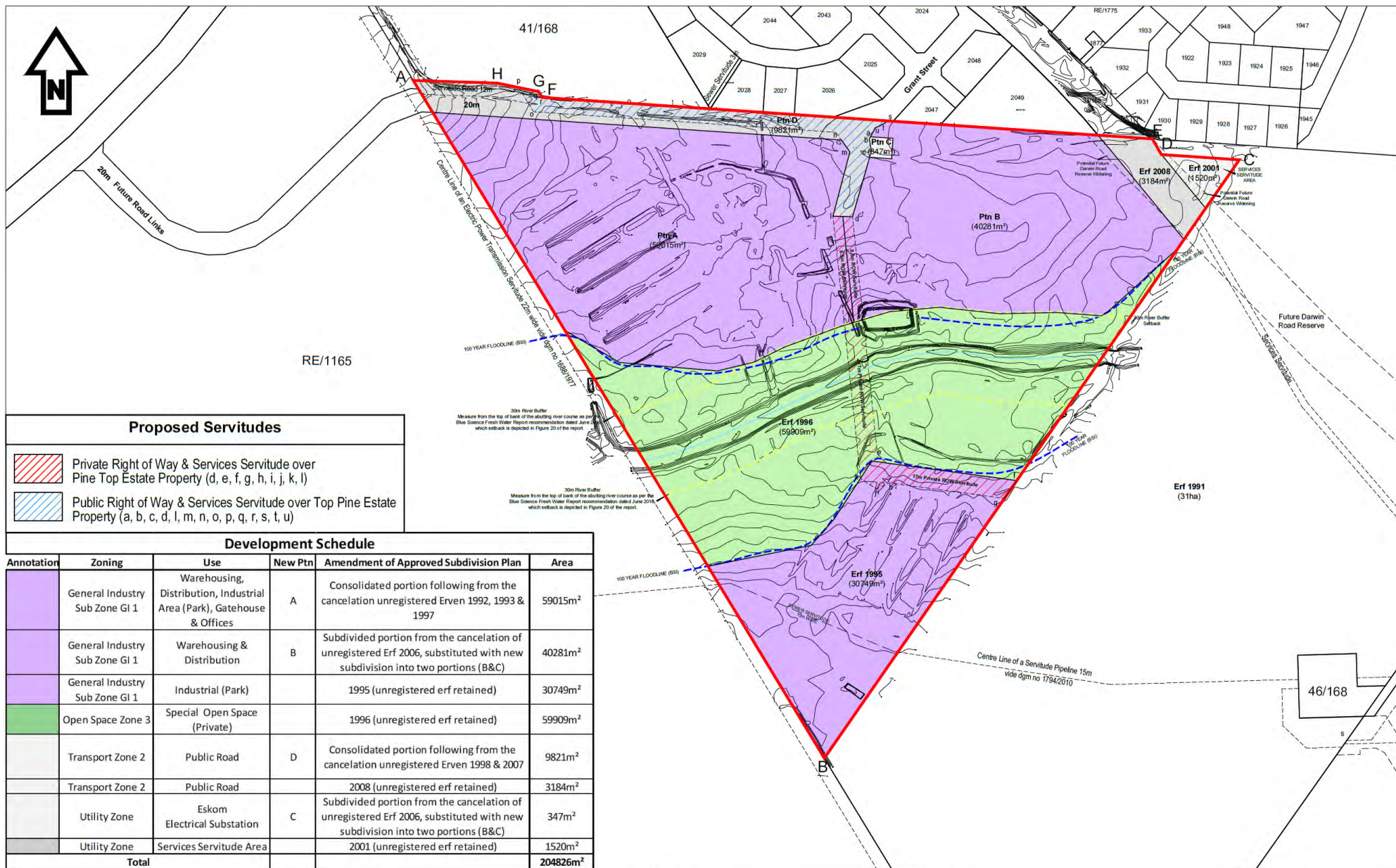
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V/C = CRITICAL VOLUME-TO-CAPACITY RATIO	



LEGEND	
STOP / YIELD CONTROL	
TRAFFIC SIGNAL	
EXISTING (2024) TRAFFIC CONDITIONS UPGRADES	
BACKGROUND (2029) TRAFFIC CONDITIONS UPGRADES	
TOTAL (2029) TRAFFIC CONDITIONS UPGRADES	

Annexure B

Subdivision Plans



FIRST FLOOR LA GRATITUDE OFFICE BUILDING | 97 DORP STREET
STELLENBOSCH 7600 | TEL +27 (21) 861 3800 | www.tv3.co.za

Proposed Subdivision Plan Amendment
Portions 32 & 33 of Farm 168, Fisantekraal
(now Erven 1990 & 1991, Fisantekraal)

Drawing: Amended Subdivision Plan
Date: 09/05/2025
Project no.: 3169-P

Plan no.: 1
Scale: 1:3000 (A3)
Drawn: WH
Checked: MW

Notation: Cadastral information obtained from Surveys and Mapping (DRDLR).
Aerial Photography obtained on Google Earth.

* All areas and dimensions are approximate and should be verified by a professional land surveyor.
* This drawing is the property of TV3 Architects and Town Planners (Pty) Ltd and copyright is reserved

Annexure C

Tables

Table C1: Peak Hour Development Trip Generation Rates

Development Zone	Description	Land Use	Unit	Source	Extent (m ² GLA) *	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
						Rate (trips/100 m ² GLA)	In	Out	Rate (trips/100 m ² GLA)	In	Out
Consolidated Erven 1992, 1993 & 1997	Phase 1	Warehousing & Distribution	100m ² GLA	COTO 150	10 589	0.50	60%	40%	0.50	45%	55%
	Phase 1	Industrial Area (Park)	100m ² GLA	COTO 130	961	0.80	70%	30%	0.80	25%	75%
	Phase 2	Warehousing & Distribution	100m ² GLA	COTO 150	5 527	0.50	60%	40%	0.50	45%	55%
	Phase 2	Industrial Area (Park)	100m ² GLA	COTO 130	472	0.80	70%	30%	0.80	25%	75%
	Phase 3	Warehousing & Distribution	100m ² GLA	COTO 150	3 111	0.50	60%	40%	0.50	45%	55%
	Phase 3	Offices	100m ² GLA	COTO 710	3 873	2.10	85%	15%	2.10	20%	80%
	Subtotal				24 533						
Erf 2006	Type A Units	Warehousing & Distribution	100m ² GLA	COTO 150	11 347	0.50	60%	40%	0.50	45%	55%
	Type B Units	Warehousing & Distribution	100m ² GLA	COTO 150	5 800	0.50	60%	40%	0.50	45%	55%
	Type C Units	Warehousing & Distribution	100m ² GLA	COTO 150	612	0.50	60%	40%	0.50	45%	55%
	Subtotal				17 759						
Erf 1995		Industrial Area (Park)	100m ² GLA	COTO 130	13 068	0.80	70%	30%	0.80	25%	75%
	Subtotal				13 068						
Total					55 361						

Table C2: Estimated Weekday a.m. and p.m. Peak Hour Development Trips

Development Zone	Description	Land Use	Weekday a.m. Peak Hour			Weekday p.m. Peak Hour		
			In	Out	Total	In	Out	Total
Consolidated Erven 1992, 1993 & 1997	Phase 1	Warehousing & Distribution	32	21	53	24	29	53
	Phase 1	Industrial Area (Park)	6	2	8	2	6	8
	Phase 2	Warehousing & Distribution	17	11	28	13	15	28
	Phase 2	Industrial Area (Park)	4	3	1	1	3	4
	Phase 3	Warehousing & Distribution	10	6	16	7	9	16
	Phase 3	Offices	69	12	81	16	65	81
	Subtotal		137	53	190	63	127	190
Erf 2006	Type A Units	Warehousing & Distribution	34	23	57	26	31	57
	Type B Units	Warehousing & Distribution	17	12	29	13	16	29
	Type C Units	Warehousing & Distribution	2	1	3	1	2	3
	Subtotal		53	36	89	40	49	89
Erf 1995		Industrial Area (Park)	74	31	105	26	79	105
	Subtotal		74	31	105	26	79	105
Total			264	120	384	129	255	384