

TRAFFIC IMPACT ASSESSMENT

June 2025

INDUSTRIAL DEVELOPMENT CONSOLIDATED ERVEN 1992, 1993 & 1997 ERF 1995, AND ERF 2006 FISANTEKRAAL, DURBANVILLE

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TABLE OF CONTENTS

1. INTRODUCTION	1
1.1 Previous Approvals.....	2
1.2 Current Application	2
2. EXISTING AND PROPOSED LAND USE	3
3. EXISTING AND PROPOSED TRIP GENERATION.....	4
4. TRAFFIC IMPACT.....	6
5. DEVELOPMENT CONTRIBUTIONS	9
6. ACCESS & CIRCULATION.....	12
6.1 Erven 1992, 1993 & 1997	12
6.2 Erf 2006	14
7. PARKING	16
7.1 Parking - Erven 1992, 1993 and 1997	16
7.2 Parking - Erf 2006.....	17
8. NMT.....	18
9. PUBLIC TRANSPORT	18
10. CONCLUSIONS	18
11. RECOMMENDATIONS	22

LIST OF FIGURES

Figure 1.1: Locality Plan – Showing Development Pockets.....	1
Figure 2.1: Existing Approved Conceptual SDP for 6 100 Ministorage Units	3
Figure 6.1: SDP for Erven 1992, 1993 & 1997 – Overlay Showing Access and Circulation.....	13
Figure 6.2: SDP for Erf 2006 – Overlay Showing Access and Circulation	15

LIST OF TABLES

Table 2.1: Proposed Land Use for the Current Application	4
Table 3.1: Proposed New Trip Generation	5
Table 3.2: Proposed Trip Generation from Adjacent Site (Erf 1991)	5
Table 3.3: Existing, Increased and Adjacent Site (Erf 1991) Trip Generation.....	6
Table 4.1: Existing, Increased and Adjacent Site (Erf 1991) Trip Generation.....	8
Table 5.1: Estimated DC charges for developments in the area (Based on 2024/25 calculator)	9
Table 5.2: Estimated 2024/2025 DC charges for Erven 1992, 1993 & 1997, Erf 1995, and Erf 2006.....	10
Table 5.3: Estimated Cost of Road Improvements.....	11
Table 7.1: Parking Required & Provided for Erven 1992, 1993 & 1997.....	17
Table 7.2: Parking Required & Provided for Erven 2006	17

LIST OF APPENDICES

APPENDIX A: Subdivision Plan

APPENDIX B: ITS TIA for Erven 1992, 1993 & 1997; Erf 1995 and Erf 2006

1. INTRODUCTION

RPP Developments (Pty) Ltd appointed EFG Engineers (Pty) Ltd to prepare a Traffic Impact Assessment (TIA) in support of an application for the Industrial Development of:

- Consolidated Erven 1992, 1993 & 1997;
- Erf 1995; and
- Erf 2006.

The properties are located in Fisantekraal (see **Figure 1.1**).

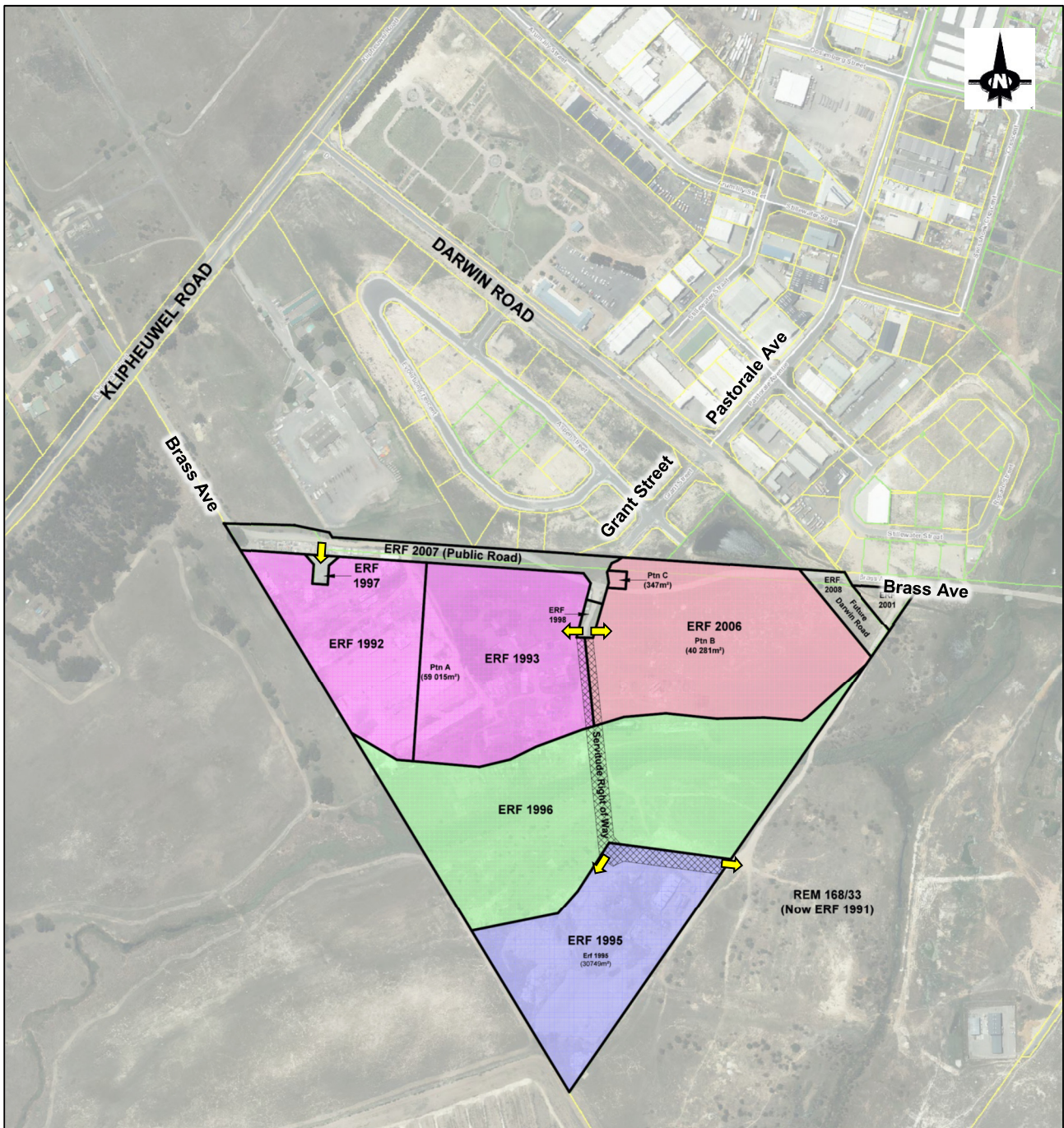


Figure 1.1: Locality Plan – Showing Development Pockets

1.1 Previous Approvals

EFG Engineers (Pty) Ltd previously prepared a TIS (dated November 2015) in support of the Consolidation, Rezoning and Subdivision of Portion 32 into four General Industrial Zone 1 portions to accommodate 6 100 mini storage units. This was subsequently approved (15 March 2019).

An application was made in November 2023 for an extension of the approval which was granted in March 2024.

1.2 Current Application

The current application is to amend the Development Rights to permit a General Industrial Development that will not be limited to mini storage units.

This application includes:

- The amendment of the Subdivision Plan for the full development.
- Application for Industrial development rights and the amendment of the SDP for the two pockets north of the river, namely:
 - Consolidated Erven 1992, 1993 & 1997: This development pocket will include a Warehousing and Distribution Centre (primarily cold storage), some workshops and offices associated with the Distribution Centre.
 - Erf 2006: This will include smaller warehouse units.
- Application for Industrial development rights for the third pocket, Erf 1995 located south of the river. A SDP will be submitted at a later stage for Erf 1995.

As shown in **Figure 1.1**, a servitude right of way is proposed:

- On Erf 1993 (8.5 m wide) and Erf 2006 (8.5 m wide) with a combined width of 17 m.
- On Erf 2006 across the POS/river with a width of 17 m.
- On Erf 1995 along the northern boundary. This will provide access to a portion of the development on Rem 168/33 (now Erf 1991).

Although not part of this application a portion of Rem 168/33 (now Erf 1991) will also gain access via the servitudes as described. This development is being considered in detail by ITS Engineers.

2. EXISTING AND PROPOSED LAND USE

The existing (previously approved) development was for 6 100 mini storage units. The previously approved conceptual SDP is shown in **Figure 2.1**.

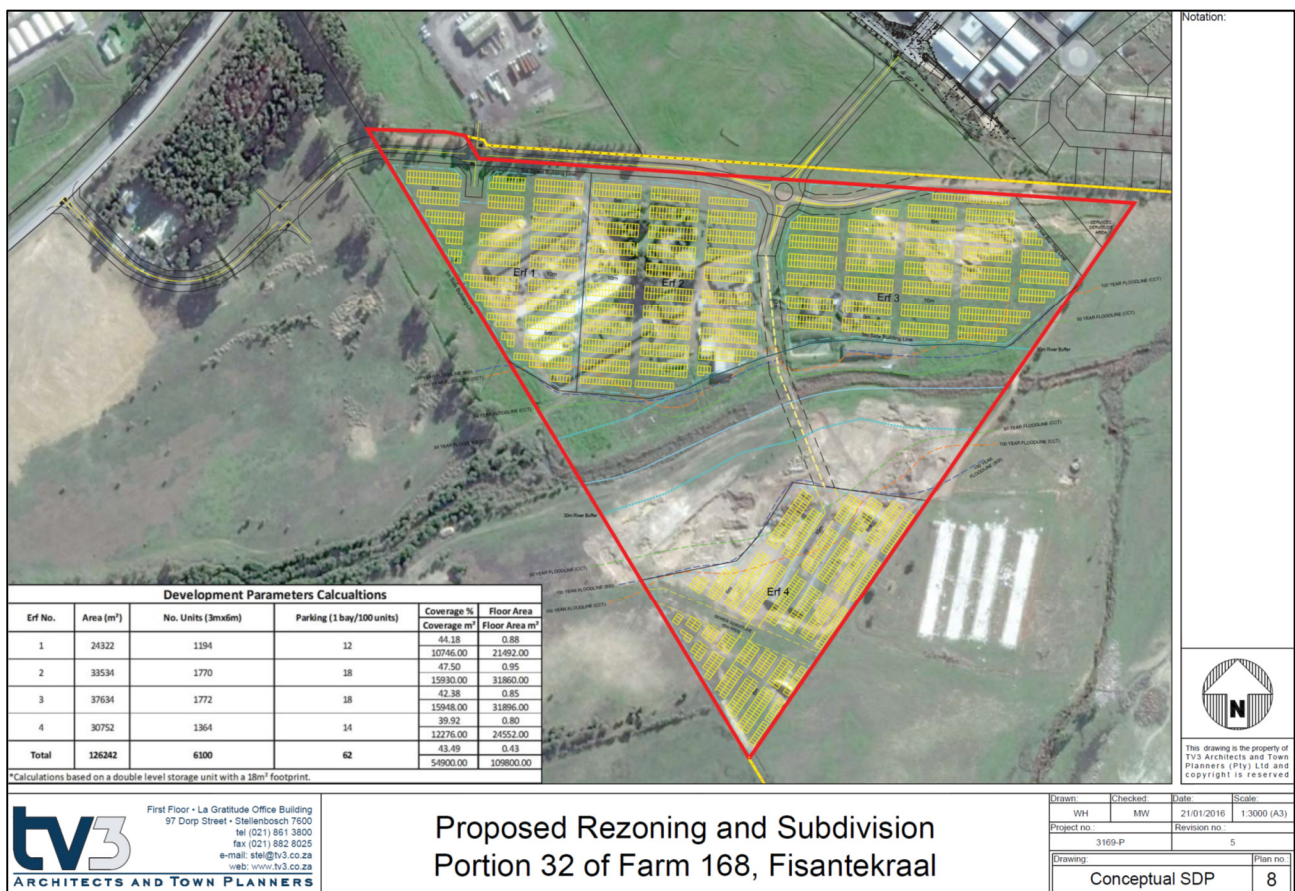


Figure 2.1: Existing Approved Conceptual SDP for 6 100 Ministorage Units

The current application is to replace the previous development rights with the proposal as detailed below and summarised in **Table 2.1**.

- **Consolidated Erven 1992, 1993 & 1997:** General Industrial 1 (GI1) use comprising of Four Phases. The Total GLA of the Phases 1 to 4 is **24 538 m²** which is broken down as follows:
 - 16 173 m² Warehousing & Distribution (Refrigeration);
 - 3 057 m² Warehousing & Distribution;
 - 1 458 m² Industrial Area (Maintenance Workshops);
 - 3 850 m² Offices (integral to the underlying industrial zoning)
- **Erf 2006:** General Industrial 1 (GI1) use comprising of 4 Phases as follows:
 - 20 699 m² Warehousing & Distribution (58 small warehousing units);
- **Erf 1995:** General Industrial 1 (GI1) use
 - 13 068 m² Industrial Area (Park);

Table 2.1: Proposed Land Use for the Current Application

ERF	Erf Area (m²)	Use		GLA	
		Description	Land Use	Subtotal	Total
Consolidated Erven 1992, 1993 & 1997		Phase 1: Workshop	Industrial Area (Park)	992	3 492
		Phase 1: Offices	Offices	2 500	
		Phase 2: Pre Cooling Refrigeration	Warehousing & Distribution	10 646	10 646
		Phase 3: Pre Cooling Refrigeration	Warehousing & Distribution	5 527	5 993
		Phase 3: Workshop	Industrial Area (Park)	466	
		Phase 4: Warehouse	Warehousing & Distribution	3 057	4 407
		Phase 4: Offices	Offices	1 350	
		TOTAL		24 538	24 538
Erf 2006	40 628	Phase 1: Warehouse	Warehousing & Distribution	6 824	6 824
		Phase 2: Warehouse	Warehousing & Distribution	5 525	5 525
		Phase 3: Warehouse	Warehousing & Distribution	6 447	6 447
		Phase 4: Warehouse	Warehousing & Distribution	1 903	1 903
		TOTAL		20 699	20 699
Erf 1995	30 749	Allow Bulk of 50% GLA at 85% of Bulk	Industrial Area (Park)	13 068	13 068
		TOTAL		13 068	13 068
TOTAL ALL ERVEN				58 305	

3. EXISTING AND PROPOSED TRIP GENERATION

The trip generation for the previously approved development was estimated at 162 trips during the AM peak hour and 105 trips during the PM peak hour. The revised trip generation for the current proposal is 398 trips during the AM peak hour and 398 trips during the PM peak hour which is an increase of 236 and 293 trips in the AM and PM peak hours respectively.

The new trip generation is summarised in **Table 3.1**.

Table 3.1: Proposed New Trip Generation

ERF	Use		GLA		AM Peak Hour						PM Peak Hour					
					TGR per 100m ²	Split		Trips			TGR per 100m ²	Split		Trips		
	Description	Land Use	Subtotal	Total		IN	OUT	Total	IN	OUT		IN	OUT	Total	IN	OUT
Consolidated Erven 1992, 1993 & 1997	Phase 1: Workshop	Industrial Area (Park)	992	3 492	0.8	70%	30%	8	6	2	0.8	25%	75%	8	2	6
	Phase 1: Offices	Offices	2 500		2.1	85%	15%	53	45	8	2.1	20%	80%	53	11	42
	Phase 2: Pre Cooling Refrigeration	Warehousing & Distribution	10 646	10 646	0.5	60%	40%	53	32	21	0.5	45%	55%	53	24	29
	Phase 3: Pre Cooling Refrigeration	Warehousing & Distribution	5 527	5 993	0.5	60%	40%	28	17	11	0.5	45%	55%	28	13	15
	Phase 3: Workshop	Industrial Area (Park)	466		0.8	70%	30%	4	3	1	0.8	25%	75%	4	1	3
	Phase 4: Warehouse	Warehousing & Distribution	3 057	4 407	0.5	60%	40%	15	9	6	0.5	45%	55%	15	7	8
	Phase 4: Offices	Offices	1 350		2.1	85%	15%	28	24	4	2.1	20%	80%	28	6	22
	TOTAL		24 538	24 538				189	136	53				189	64	125
Erf 2006	Phase 1: Warehouse	Warehousing & Distribution	6 824	6 824	0.5	60%	40%	34	20	14	0.5	45%	55%	34	15	19
	Phase 2: Warehouse	Warehousing & Distribution	5 525	5 525	0.5	60%	40%	28	17	11	0.5	45%	55%	28	13	15
	Phase 3: Warehouse	Warehousing & Distribution	6 447	6 447	0.5	60%	40%	32	19	13	0.5	45%	55%	32	14	18
	Phase 4: Warehouse	Warehousing & Distribution	1 903	1 903	0.5	60%	40%	10	6	4	0.5	45%	55%	10	5	5
	TOTAL		20 699	20 699				104	62	42				104	47	57
Erf 1995	Allow Bulk of 50% GLA at 85% of Bulk	Industrial Area (Park)	13 068	13 068	0.8	70%	30%	105	74	31	0.8	25%	75%	105	26	79
	TOTAL		13 068	13 068				105	74	31				105	26	79
TOTAL ALL ERVEN				58 305				398	272	126				398	137	261

Table 3.2 shows the anticipated additional trip generation (obtained from ITS Engineers) for the portion of the development on Erf 1991 which will gain access via the servitudes through this development.

Table 3.2: Proposed Trip Generation from Adjacent Site (Erf 1991)

ERF	Use		GLA		AM Peak Hour						PM Peak Hour					
					TGR per 100m ²	Split		Trips			TGR per 100m ²	Split		Trips		
	Description	Land Use	Subtotal	Total		IN	OUT	Total	IN	OUT		IN	OUT	Total	IN	OUT
Erf 1991 Phase 4	GLA = 50% of Erf Area	Industrial Area (Park)	29 100	29 100	0.8	70%	30%	233	163	70	0.8	25%	75%	233	58	175
TOTAL			29 100	29 100				233	163	70				233	58	175

Table 3.3 summarises the previous trip generation; the increased trip generation as a result of the new application; and the trips of the adjacent site. This indicates a combined new trip generation of 631 trips in both the AM and PM peak hours.

Table 3.3: Existing, Increased and Adjacent Site (Erf 1991) Trip Generation

SUMMARY	AM Peak Hour				PM Peak Hour			
		Trips				Trips		
		Total	IN	OUT		Total	IN	OUT
PREVIOUS TRIP GENERATION (Nov 2023)	26%	162	81	81	17%	105	52	53
INCREASED TRIP GENERATION (OWN ERVEN)	37%	236	191	45	46%	293	85	208
TRIP GENERATION (Adjacent Site)	37%	233	163	70	37%	233	58	175
TOTAL TRIP GENERATION (Incl Adjacent Site)		631	435	196		631	195	436

4. TRAFFIC IMPACT

ITS have carried out a TIA for the development of Erf 1991 and RE/5/724. As per the TIA Revision 3, dated November 2024, some development trips from a portion of Erf 1991 (Phase 4 with a GLA of 29 000 m² as per **Table 3.2** above) were assigned via a servitude right of way over erven 1993, 2006, 1996, and 1995 (which form part of the current application). The TIA made recommendations of road improvements required for existing traffic conditions and for 2029 conditions with background growth and the full development of Erf 1991 and RE/5/724. Surrounding latent development traffic, including the previously approved rights for mini storage units as shown in **Figure 2.1**.

After discussion with City Transport (Daniël Potgieter) it was agreed that it made sense for ITS to re-assess the traffic impact and road improvements required which now included the enhanced development rights currently being considered for this application. The trip generation was provided by EFG to ITS for the TIA which includes the additional/amended development rights now being applied for. Subsequent to the initial information being provided there were some minor changes to the GLA which resulted in 8 additional trips IN and 6 additional trips OUT in the AM peak hour and 6 additional trips IN and 8 additional trips OUT in the PM peak hour. This will not significantly alter the results of the TIA that was carried out by ITS and which is included in **Annexure A**.

The ITS TIA indicates that for the 2024 traffic conditions improvements are already required at:

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

Once Erf 1991 and RE/5/724 development traffic is added with background growth and latent development trips the following additional improvements are required:

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

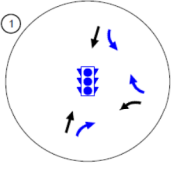
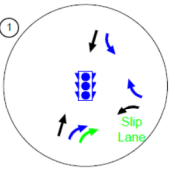
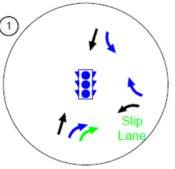
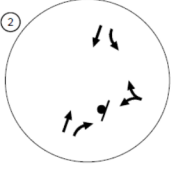
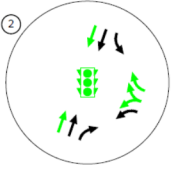
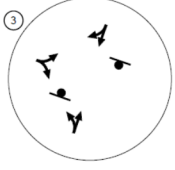
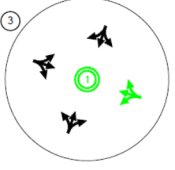
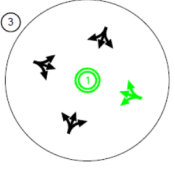
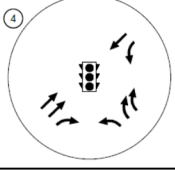
The ITS TIA indicates that for the increased trip generation for amending the development rights for Erven 1992, 1993 & 1997, Erf 1995, and Erf 2006 (which was restricted to Mini Storage Units) to allow for a wider Industrial use as detailed in **Section 2** is as follows:

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

The build-up of the required road improvements is summarised in **Table 4.1** for the following scenarios:

- Existing traffic conditions;
- 2029 with growth and latent development trips and Erf 1991 and RE/5/724 development traffic; and
- 2029 as above but adding the additional development trips from the proposed development Erven 1992, 1993 & 1997, Erf 1995, and Erf 2006.

Table 4.1: Existing, Increased and Adjacent Site (Erf 1991) Trip Generation

<i>Existing Mitigation Required</i>	<i>Initial 2029 Mitigation with Growth & Development of Erf 1991 & RE/5/724 & Previously approved Mini-Storage rights</i>	<i>Updated 2029 Mitigation with Growth & Development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (i.e. including Current Application Rights)</i>
Intersection 1: Klipheuwel Road/Lichtenburg Road		
		
Northbound Construct a dedicated right-turn lane.	Northbound Construct an additional dedicated right-turn lane.	Northbound Nil additional
Southbound Construct a dedicated left-turn lane.	Southbound Nil additional	Southbound Nil additional
Westbound Construct a dedicated right-turn lane.	Westbound Construct a left-turn slip lane.	Westbound Nil additional
Intersection Control Warrants a traffic signal upgrade.	Intersection Control Adjust signals as necessary	Intersection Control Nil additional
Intersection 2: Klipheuwel Road/Darwin Road		
		
Northbound Nil	Northbound Construct an additional through lane.	Northbound Nil additional
Southbound Nil	Southbound Construct an additional through lane.	Southbound Nil additional
Westbound Nil	Westbound Construct a dedicated right-turn lane and shared right- and left-turn lane.	Westbound Construct a left-turn slip lane and convert the shared right- and left-turn lane to a dedicated right-turn lane.
Intersection Control Nil	Intersection Control Warrants a traffic signal upgrade.	Intersection Control Adjust signals as necessary
Intersection 3: Darwin Road/Pastorale Avenue		
		
Intersection Control Nil	Intersection Control Construct a single-lane roundabout.	Intersection Control Nil additional
Intersection 4: Klipheuwel Road/Okavango Road		
		
Southbound Nil	Southbound Construct an additional through lane.	Southbound Nil additional

5. DEVELOPMENT CONTRIBUTIONS

The improvements as discussed and recommended in **Section 4** should be implemented with Development Contributions from the developments which should include:

- Any previously approved developments where DCs have not yet been or used;
- The development of Erf 1991 and RE/5/724; and
- The development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006.

Based on Table 7 in the ITS TIA for Erf 1991 and RE/5/724 (see extract below in **Table 5.1**) it was estimated that the Roads & Transport DCs for all the surrounding developments are approximately R 367 million (Including VAT). This included the development of Erf 1991 and RE/5/724 (approximately R 81 million) and the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (approximately R 39 million).

Table 5.1: Estimated DC charges for developments in the area (Based on 2024/25 calculator)

Development	Phase / % Included	Roads (Incl. VAT)	Transport (Incl. VAT)	Total (Incl. VAT)
Glass Factory on Remainder Farm 180, Portion 3 of Farm 180 and Portion 13 of Farm 168	100%	R45 400 000	R3 200 000	R48 600 000
Industrial development on Erf 1690	100%	R14 200 000	R1 000 000	R15 200 000
Industrial development on Erven 1693 and 1870	100%	R6 350 000	R450 000	R6 800 000
Storage Facility on Portion 32 of Farm 168	100%	R36 650 000	R2 600 000	R39 250 000
Groot Phesantekraal Phase 4	Remaining Phase 4.1 & Phase 4.2	R89 500 000	R2 650 000	R92 150 000
Groot Phesantekraal Phase 5	100%	R35 800 000	R2 100 000	R37 900 000
Bella Riva	Phase 1	R36 600 000	R1 200 000	R37 800 000
Greenville Garden City	Estimated construction rate	R7 150 000	R1 650 000	R8 800 000
Durbanville Industrial	Erf 1991	R22 650 000	R1 600 000	R24 250 000
	RE/5/724	R52 900 000	R3 750 000	R56 650 000
Total		R347 200 000	R20 200 000	R367 400 000

The DCs for Erf 1991 and RE/5/724 was estimated to be approximately R 81 million (Including VAT) and the DCs for Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (previously portion 32 of Farm 168) was estimated to be approximately R 39 million (Including VAT). The latter was considered to be on the high side taking into consideration the development was restricted to mini storage units which had a much lower trip generation than a normal industrial development.

The available Roads & Transport DCs for the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 which caps the GLA and land use is estimated to be approximately R 14.88 million (Including VAT) as summarised in **Table 5.2**.

Table 5.2: Estimated 2024/2025 DC charges for Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006

ERF	Use		GLA (m²)		Roads & Transport	Stormwater	Sewage	Water	Solid Waste
	Description	Land Use	Subtotal	Total					
Consolidated Erven 1992, 1993 & 1997	Phase 1: Workshop	Industrial Area (Park)	992	3 492	R 1 701 264	R 72 499	R 192 665	R 27 115	R 41 031
	Phase 1: Offices	Offices	2 500						
	Phase 2: Pre Cooling Refrigeration	Warehousing & Distribution	10 646	10 646	R 2 029 768	R 236 838	R 539 128	R 82 665	R 125 091
	Phase 3: Pre Cooling Refrigeration	Warehousing & Distribution	5 527	5 993	R 1 220 450	R 133 324	R 303 494	R 46 535	R 70 418
	Phase 3: Workshop	Industrial Area (Park)	466						
	Phase 4: Warehouse	Warehousing & Distribution	3 057	4 407	R 1 309 937	R 95 241	R 231 722	R 34 220	R 51 782
	Phase 4: Offices	Offices	1 350						
	TOTAL Erven 1992, 1993 & 1997			24 538	24 538	R 6 261 419	R 537 902	R 1 267 009	R 190 535
Erf 2006	Phase 1: Warehouse	Warehousing & Distribution	6 824	6 824	R 1 301 065	R 151 811	R 345 577	R 52 988	R 80 182
	Phase 2: Warehouse	Warehousing & Distribution	5 525	5 525	R 1 053 337	R 122 913	R 279 794	R 42 901	R 64 919
	Phase 3: Warehouse	Warehousing & Distribution	6 447	6 447	R 1 229 186	R 143 424	R 326 485	R 50 060	R 75 752
	Phase 4: Warehouse	Warehousing & Distribution	1 903	1 903	R 362 826	R 42 335	R 96 371	R 14 777	R 22 360
	TOTAL Erf 2006			20 699	20 699	R 3 946 414	R 460 484	R 1 048 226	R 160 726
Erf 1995	Allow Bulk of 50% GLA at 85% of Bulk	Industrial Area (Park)	13 068	13 068	R 4 673 952	R 290 720	R 661 781	R 101 472	R 153 549
	TOTAL Erf 1995		13 068	13 068	R 4 673 952	R 290 720	R 661 781	R 101 472	R 153 549
TOTAL ALL ERVEN			58 305		R 14 881 785	R 1 289 107	R 2 977 016	R 452 732	R 685 084
					R 20 285 723				

With the reduced DCs for Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (previously portion 32 of Farm 168) this will make the total available DCs closer to R 342 million (Including VAT).

The ITS TIA for Erf 1991 and RE/5/724 indicates a high-level cost estimate for constructing the Darwin Road extension to Amadeus Drive which would cost approximately R91 million for the single-carriageway. This means that there is a shortfall of approximately R10 million from the DCs available from the development of Erf 1991 and RE/5/724. The shortfall can be covered by funds from available approved development DCs,

ensuring the completion of the Darwin Road extension. As indicated in the TIA for Erf 1991 and RE/5/724 the allocation of these funds would need to be agreed upon with the City of Cape Town.

The intersection improvements as required from the two developments (Erf 1991 and RE/5/724 plus Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006) as detailed in the TIS would also need to be funded by DCs. A high-level cost estimate (see **Table 5.3**) for constructing these road improvements which includes P&G, contingencies and design fees is estimated at R 19 million (Including VAT).

Table 5.3: Estimated Cost of Road Improvements

SCENARIO	Cost (Incl VAT)
For Existing Conditions	
<u>Intersection 1: Klipheuwel Road/Lichtenburg Road</u> Northbound – dedicated right-turn lane. Southbound – dedicated left-turn lane. Westbound – dedicated right-turn lane. Intersection control – Warrants a traffic signal upgrade.	R 5 300 000
Initial 2029 growth & Erf 1991 and RE/5/724 development traffic	
<u>Intersection 1: Klipheuwel Road/Lichtenburg Road</u> Northbound – Construct an additional dedicated right-turn lane. Westbound – left-turn slip lane.	R 2 500 000
<u>Intersection 2: Klipheuwel Road/Darwin Road</u> Northbound – Construct an additional through lane. Southbound – Construct an additional through lane. Westbound – dedicated right-turn lane and shared right- and left-turn lane. Intersection control – Warrants a traffic signal upgrade.	R 6 000 000
<u>Intersection 3: Darwin Road/Pastorale Avenue</u> Intersection control – single-lane roundabout.	R 2 000 000
<u>Intersection 4: Klipheuwel Road/Okavango Road</u> Southbound – Construct an additional through lane.	R 1 700 000
Updated 2029 growth Plus Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (i.e. including Current Application Rights)	
<u>Intersection 2: Klipheuwel Road/Darwin Road</u> Westbound – left-turn slip lane and convert the shared right- and left-turn lane to a dedicated right-turn lane.	R 1 500 000
PROVISIONAL COST ESTIMATE OF ALL IMPROVEMENTS	R 19 000 000

The DCs from the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 is close to R 15 million (including VAT). There is therefore a shortfall of approximately R 4 million (Including VAT) which will need to be sourced from the remaining developments. It is however understood that at least the initial improvements and signalisation at the Klipheuwel/Lichtenburg intersection are currently been considered for implementation by the City through available DCs. This will reduce the cost of the remaining improvements to 13.7 mill (Incl VAT) which could then potentially be fully funded via the DCs from this development.

In summary there are significant and sufficient DCs available from surrounding developments to implement the proposed intersection improvements and construct the proposed extension of Darwin Road. As such it is recommended that the City enter into a Service Level Agreement with the Developer of Erven 1992, 1993

& 1997, Erf 1955, and Erf 2006 to enable them to prioritise and implement DCs from this development for road improvements as and when necessary and as the development proceeds.

6. ACCESS & CIRCULATION

The full SDP plans are shown in **Appendix A** for:

- The consolidation of Erven 1992, 1993 and 1997, and
- Erf 2006.

At this stage no application is being made for SDP approval for Erf 1955.

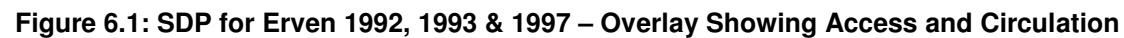
6.1 Erven 1992, 1993 & 1997

This site is being developed as a cold storage distribution centre and includes a major precooling facility, a workshop and some related offices. The position of the main access from Brass Avenue is as previously planned and which provides access to this site (south of Brass Avenue) as well the property to the north (Farm 168/41).

The main access configuration makes provision for one lane IN (6 m wide) and one lane OUT (5 m wide). In order to accommodate the truck movements. A departure will be required for the wider carriageway crossing. The truck access then tees off to the left making provision for three truck lanes IN and two truck lanes OUT. The trucks circulate around the site in a clockwise direction before exiting the site. A secondary truck Access IN only is provided from the road on the eastern edge of the site opposite the access to Erf 2006. This access will only be used in peak harvesting season to accommodate additional trucks and thereby limiting any possible negative impact on the main access. The access allows trucks to enter and queue on site while waiting to be processed. The truck tracking is shown in **Figure 6.1**.

Staff and visitors will use the main access and will continue straight. The access control for light vehicles provides for two lanes IN. The IN lanes can each accommodate 3 cars before interfering with the truck exit lane.

A refuse embayment is provided in Brass Avenue downstream of the main access. Initially Brass Avenue will be constructed up to and including the refuse embayment. This will allow a refuse truck to use the embayment and then reverse using the site access as a shunt to turn around. Future development to the west will dictate the timing for the extension of Brass Avenue further westwards.



6.2 Erf 2006

This site is being developed as small storage units which vary from 264 m² to 612 m². The position of the main access is from the southern road link from Brass Avenue. This is initially a public road which then continues southwards (just past the proposed access) as a right of way servitude serving Erf 1995, and Phase 4 of the proposed development of Erf 1991. The access off this road is from the end of the public road.

The main access configuration makes provision for one lane IN (6 m wide) which widens to two lanes at the access control. There is a 4 m wide island between the entrance and exit lanes and the exit lane is 4 m wide. This wider carriageway crossing will require a departure. The island between the IN and OUT can accommodate pedestrians crossing the wider access.

With the access control set back approximately 26 m from the through edge of the road the one lane IN can accommodate 2 vehicles and the other lane IN can accommodate 4 vehicles. Stacking is therefore not considered to be an issue.

Access to the site will be restricted to light delivery vehicles and small rigid trucks. No articulated trucks will be permitted on-site. Tracking has been tested for a SU vehicle (9m length) and found to be acceptable (see **Figure 6.2**).

A refuse embayment is provided in the public street just before the access. Sight lines from the access have been tested and the position was found to be acceptable. The refuse truck on leaving the embayment will use the site access as a shunt to turn around. The road will initially be built just past the access to Erf 2006 and will be extended in the servitude right of way when Erf 1995 and/or Erf 1991 proceed.



7. PARKING

Parking required and provided for the two SDPs are considered separately below.

7.1 Parking - Erven 1992, 1993 and 1997

The Bylaw requires parking to be provided as follows:

- Warehousing 1 bay/100 m²
- Industrial 1.5 bays/100m² (if GLA is less than 3 000 m²) 1.0 bays/100 m² greater than 3 000 m²
- Offices 4 bays/100 m²

The main warehousing facility is primarily a precooling facility and staff cannot stay inside the chiller stores and rapid cooling areas for any length of time. These limited “no go” areas account for just over 50% of the precooling facility. Based on experience from the Go Chill (who will be developing the facility) the parking at a rate of 1 bay/100 m² is considered to be very high for the facility. Their precooling facility in Durban is just under 12 000 m² and has a staff complement of 60 (approx 1 staff member/200m²). The precooling portion of the development on Erven 1992, 1993 and 1997 is just under 16 200 m² (of which approximately 8 200 m² are chiller and rapid cooling areas). Based on the Durban facility the staff compliment for this precooling facility is anticipated to be 81 people. Some of the staff would use public transport and therefore conservatively assuming an average of 1.5 staff/car one would need 54 bays for the precooling facility. This equates to less than 0.35 bays/100 m² for the precooling facility.

Although the SDP can accommodate the required rate of 1 bay/100 m² it is proposed that the area provided for half of these bays (80 bays) will be open and used as an additional staging area rather than being utilised for parking. Therefore, while theoretically the development can provide the 1 bay/100 m² for the precooling warehouse facility the SDP shows only 0.5 bays/100 m² for the precooling portion of the development.

The workshop component of the development is considered to be industrial of nature and not warehousing/cold storage. As the GLA of this portion of the development is less than 3 000 m² a rate of 1.5 bays/100 m² is required and provided in terms of the Bylaw.

The fourth phase of the development provides for additional warehousing. As it is not clear at this stage if this will be pure warehousing or cold storage the rate of 1 bay/100 m² is applied for this warehousing portion of the development.

Table 7.1 provides a summary of the parking required and provided as the four phases are developed.

Table 7.1: Parking Required & Provided for Erven 1992, 1993 & 1997

ERF	Use		GLA		Parking Required			Parking Provided (Accumulated)				
	Description	Land Use	Subtotal	Total	Bylaw Rate	Bays Required	Accum.	Car Bays	MB	Car Equiv	Staging Area Bays	TOTAL
Consolidated Erven 1992, 1993 & 1997	Phase 1: Workshop	Industrial Area (Park)	992	3 492	1.5/100m ²	14.9	114.9	115	3	-		115
	Phase 1: Offices	Offices	2 500		4.0/100m ²	100.0						
	Phase 2: Pre Cooling Refrigeration	Warehousing & Distribution	10 646	10 646	1.0/100m ²	106.5	221.3	183	16	4	40	227
	Phase 3: Pre Cooling Refrigeration	Warehousing & Distribution	5 527	5 993	1.0/100m ²	55.3	283.6	285	16	4	80	369
	Phase 3: Workshop	Industrial Area (Park)	466		1.5/100m ²	7.0						
	Phase 4: Warehouse	Warehousing & Distribution	3 057	4 407	1.0/100m ²	30.6	368.2	285	16	4	80	80
	Phase 4: Offices	Offices	1 350		4.0/100m ²	54.0						
	TOTAL		24 538	24 538		368.2	368.2	285		4	80	369

Part of the parking provision of 369 bays as required in terms of the Bylaw includes:

- 16 motorbike bays for which there is a credit of 4 parking bays;
- 6 disabled bays as required in terms of the bylaw requirements for 369 bays; and
- A possible 80 bays that are located in a proposed staging area.

As motivated it is proposed that a reduced parking ratio of 0.5 bays/100 m² is acceptable for the precooling facility only. Based on this a reduction of 80 bays is deemed to be acceptable for use as an additional staging area if and when required and is supported.

7.2 Parking - Erf 2006

The Bylaw requires parking to be provided for warehousing at a rate of 1 bay/100 m². **Table 7.2** provides a summary of the parking required and provided as the four phases are developed.

Table 7.2: Parking Required & Provided for Erven 2006

ERF	Use		GLA		Parking Required			Parking Provided (Accumulated)
	Description	Land Use	Subtotal	Total	Bylaw Rate	Bays Required	Accum.	
Erf 2006	Phase 1: Warehouse	Warehousing & Distribution	6 824	6 824	1.0/100m ²	68.2	68.2	63
	Phase 2: Warehouse	Warehousing & Distribution	5 525	5 525	1.0/100m ²	55.3	123.5	124
	Phase 3: Warehouse	Warehousing & Distribution	6 447	6 447	1.0/100m ²	64.5	188.0	188
	Phase 4: Warehouse	Warehousing & Distribution	1 903	1 903	1.0/100m ²	19.0	207.0	207
	TOTAL		20 699	20 699		207.0		207

In addition to the 207 bays provided there are loading bays/access for each of the 58 individual warehouse units as well as 3 longer truck embayments (21 m x 3.5 m) that can accommodate a number of smaller trucks as and when required.

The SDP shows 4 disabled bays. In terms of the Bylaw 5 bays are theoretically required based on 4 bays for the first 200 bays plus 1 bay for every 100 bays (or part thereof) over 200 bays. Taking into account the many small warehouse units and considering the provision is just over the 200 bays (207 bays) required in total, the 4 disabled bays as provided are considered to be acceptable.

8. NMT

It is recommended that the proposed development include a minimum 1.8m pedestrian sidewalk and street lighting along the southern edge of Brass Avenue.

9. PUBLIC TRANSPORT

The ITS TIA for development of Erf 1991 and RE/5/724 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 confirmed with the City during the detail design stage.

No additional public transport facilities are recommended for the proposed development.

10. CONCLUSIONS

Based on the findings of this study, the following conclusions can be drawn:

- Existing approvals are in place for Erven 1992, 1993 & 1997, Erf 1955; and Erf 2006 (previously Portion 32 of Farm 168) for General Industrial Zone 1 (GI1) land use to accommodate 6100 mini storage units.
- The current application is to amend the Development Rights to still permit a General Industrial Zone 1 (GI1) land use but not to restrict this to mini storage units.
- The amended development consists of three development pockets as follows:
 - Consolidated Erven 1992, 1993 & 1997: This development pocket will include a Warehousing and Distribution Centre (primarily cold storage), some workshops and offices associated with the Distribution Centre.
 - Erf 2006: This will include smaller warehouse units.
 - Erf 1955: which will include an industrial land use (not restricted to warehousing)
- A SDP will be submitted for Erven 1992, 1993 & 1997, and Erf 2006 as part of this application. The submission of a SDP for Erf 2006 will however be part of a future application.
- A 17 m wide servitude right of way will be provided to access Erf 1955 and an adjoining development, Phase 4 of Erf 1991 (previously Portion 33 of Farm 168)
- The GLA of the three pockets of Development that fall under this application are as follows:

- Consolidated Erven 1992, 1993 & 1997: General Industrial 1 (GI1) use comprising of Four Phases with a total GLA of **24 538 m²** and which is broken down as follows: 16 173 m² Warehousing & Distribution (Refrigeration); 3 057 m² Warehousing & Distribution; 1 458 m² Industrial Area (Maintenance Workshops); and 3 850 m² Offices (integral to the underlying industrial zoning).
- Erf 2006: General Industrial 1 (GI1) use comprising of 4 Phases with a total GLA of **20 699 m²** which will comprise of Warehousing & Distribution (58 small warehousing units);
- Erf 1995: General Industrial 1 (GI1) use with a total GLA of **13 068 m²**. Provision is made for an industrial park (i.e. not limited to warehousing).
- The trip generation for the previously approved development was estimated at 162 trips during the AM peak hour and 105 trips during the PM peak hour. The revised trip generation for the current proposal is 398 trips during the AM peak hour and 398 trips during the PM peak hour which is an increase of 236 and 293 trips in the AM and PM peak hours respectively.
- There are an additional 233 trips (163 IN and 70 OUT in AM peak hour and 58 IN and 175 OUT in the PM peak hour) from an adjacent erf (Phase 4 of Erf 1991) that will access the external road network via a servitude right of way across this development.
- ITS have carried out a TIA for the adjacent development of Erf 1991 and RE/5/724. The TIA made recommendations towards road improvements required for existing traffic conditions and for 2029 conditions with background growth and the full development of Erf 1991 and RE/5/724.
- ITS were then requested to carry out a new TIA to include the additional rights for this application, i.e. the development of Erven 1992, 1993 & 1997, Erf 1995; and Erf 2006.
- The initial and additional road improvements (as a result of the change in development parameters) as determined by the two TIAs can be summarised as follows:
 - ❖ For the existing 2024 traffic conditions the road improvements were already required at:
 - Intersection 1: Klipheuwel Road/Lichtenburg Road
 - Northbound – Construct a dedicated right-turn lane.
 - Southbound – Construct a dedicated left-turn lane.
 - Westbound – Construct a dedicated right-turn lane.
 - Intersection control – Warrants a traffic signal upgrade.
 - ❖ Once Erf 1991 and RE/5/724 development traffic is added then for future 2029 conditions, with background growth and latent development, the following additional improvements are required:
 - Intersection 1: Klipheuwel Road/Lichtenburg Road
 - Northbound – Construct an additional dedicated right-turn lane.
 - Westbound – Construct a left-turn slip lane.
 - Intersection 2: Klipheuwel Road/Darwin Road
 - Northbound – Construct an additional through lane.
 - Southbound – Construct an additional through lane.
 - Westbound – Construct a dedicated right-turn lane and shared right- and left-turn lane.
 - Intersection control – Warrants a traffic signal upgrade.

- Intersection 3: Darwin Road/Pastorale Avenue
 - Intersection control – Construct a single-lane roundabout.
- Intersection 4: Klipheuwel Road/Okavango Road
 - Southbound – Construct an additional through lane.
- ❖ Then for future 2029 conditions, as above but adding the increased trip generation for amending the development rights for Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 (the additional road improvements were as follows:
 - Intersection 2: Klipheuwel Road/Darwin Road
 - Westbound – Construct a left-turn slip lane and convert the shared right- and left-turn lane to a dedicated right-turn lane.
- The road improvements as recommended should be implemented with Development Contributions from: any previously approved developments where DCs have not yet been or used; the development of Erf 1991 and RE/5/724; and the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006.
- The ITS TIA for Erf 1991 and RE/5/724 estimated the total Roads and Transport DCs for known development in the area at R 367 million (Incl VAT). This was adjusted downwards to R 342 million (Incl VAT) taking into account a lower Roads and Transport DC value for the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 which is now estimated at R 14.88 million (Incl VAT) instead of R 39 million (Incl VAT).
- The intersection improvements required for the two developments (Erf 1991 and RE/5/724 plus Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006) as detailed in the TIA would also need to be funded by DCs.
- A high-level cost estimate (see Table 5.3) for constructing these road improvements which includes P&G, contingencies and design fees is estimated at R 19 million (Including VAT).
- It is understood that there are plans to fund the initial intersection improvements and signalisation of the Klipheuwel/Lichtenburg intersection through currently available Roads and Transport DCs from one of the developments. This then leaves approximately R 13.7 million (Incl VAT) of improvements that can be implemented with the Roads and Transport DCs of R 14.88 million (Incl VAT) from the development of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006.
- There are significant and sufficient DCs available from surrounding known developments to implement the proposed intersection improvements and the proposed extension of Darwin Road. It is therefore recommended that the City enter into a Service Level Agreement with the Developer of Erven 1992, 1993 & 1997, Erf 1955, and Erf 2006 to enable the City to prioritise and implement required road improvements with DCs from this development as and when necessary and as the development proceeds.
- The position of the main access to Erven 1992, 1993 and 1997 is from Brass Avenue. As previously planned the main access is opposite the proposed access to the property to the north (Farm 168/41).
 - The main access configuration makes provision for one lane IN (6m wide) and one lane OUT (5 m wide) in order to accommodate the truck movements. A departure will be required for the wider carriageway crossing.
 - The truck access (off the main access) makes provision for three truck lanes IN and two truck lanes OUT.

- A secondary truck access, IN only, is provided from the road on the eastern edge of the site opposite the access to Erf 2006. This access will only be used in peak harvesting season to accommodate additional trucks and thereby limiting any possible negative impact on the main access and Brass Avenue.
- The access control for light vehicles provides for two lanes IN. The IN lanes can each which can accommodate 3 cars before interfering with the truck exit lane.
- A refuse embayment is provided in Brass Avenue downstream of the main access.
- The position of the main access for Erf 2006 is from the southern road link from Brass Avenue. This is initially a public road which then continues southwards (just past the proposed access) as a right of way servitude serving Erf 1995, and Phase 4 of the proposed development of Erf 1991.
 - The main access configuration makes provision for one lane IN (6 m wide) which widens to two lanes separated by a 1 m wide median at the access control.
 - There is a 4 m wide island between the entrance and exit lanes.
 - The exit lane is 4 m wide and is wide enough to accommodate emergency vehicles.
 - The wider carriageway crossing will require a departure.
 - The island between the IN and OUT can accommodate pedestrians crossing the wider access.
 - With the access control set back approximately 26 m stacking is not considered to be an issue.
 - Access to the site will be restricted to light delivery vehicles and small rigid trucks. No articulated trucks will be permitted on-site.
 - A refuse embayment is provided in the public street just before the access. Sight lines from the access have been tested and the position was found to be acceptable.
- Parking for Erven 1992, 1993 & 1997 based on the Bylaw requirements is 369 bays.
 - Although the SDP can accommodate the required rate of 1 bay/100 m² it is motivated that the precooling facility only provide parking at a rate of 0.5 bays/100 m² GLA. This means that the parking could be reduced by 80 bays to 289 bays instead of implementing 369 bays and would be acceptable.
 - It is therefore proposed that the area demarcated for the 80 bays (dotted on the SDP) be kept open as an additional staging area rather than being utilised for parking.
 - Adequate parking is provided for each phase of the development.
- Parking for Erf 2006 based on the Bylaw requirements is 207 bays.
 - The SDP provides 207 bays.
 - In addition, a loading bay/access is provided at each of the 58 individual warehouse units.
 - 3 longer truck embayments (21 m x 3.5 m) that can accommodate a number of smaller trucks are also provided.
- It is recommended that the proposed development include a minimum 1.8m wide pedestrian sidewalk and street lighting along the southern edge of Brass Avenue.
- The ITS TIA for development of Erf 1991 and RE/5/724 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.

11. RECOMMENDATIONS

Based on the findings and conclusions of this study it is recommended that:

- The Amended Development Application for Erven 1992, 1993 & 1997, Erf 1955 and Erf 2006 be supported in terms of traffic impact provided that the road improvements (as listed) are implemented with available DCs from this and other developments in the immediate area.
- The Developer and the City enter into a Service Level Agreement to allocate and utilise the available DCs from this development for Road improvements as determined and prioritised by the City taking into account the timing of this and other developments that will generate DCs in the immediate area.
- The SDP for the consolidation of Erven 1992, 1993 & 1997 be approved in terms of access, parking and circulation including a lower rate of 0.5 bays/100 m² for the precooling facility. This results in a reduction of 80 bays. The area that would have been used to accommodate 80 bays (as shown of the SDP) will be utilised as an additional staging area.
- The SDP for Erf 2006 be approved in terms of access, parking and circulation.
- In future a SDP must be submitted for Erf 1955 once details for this development are finalised.

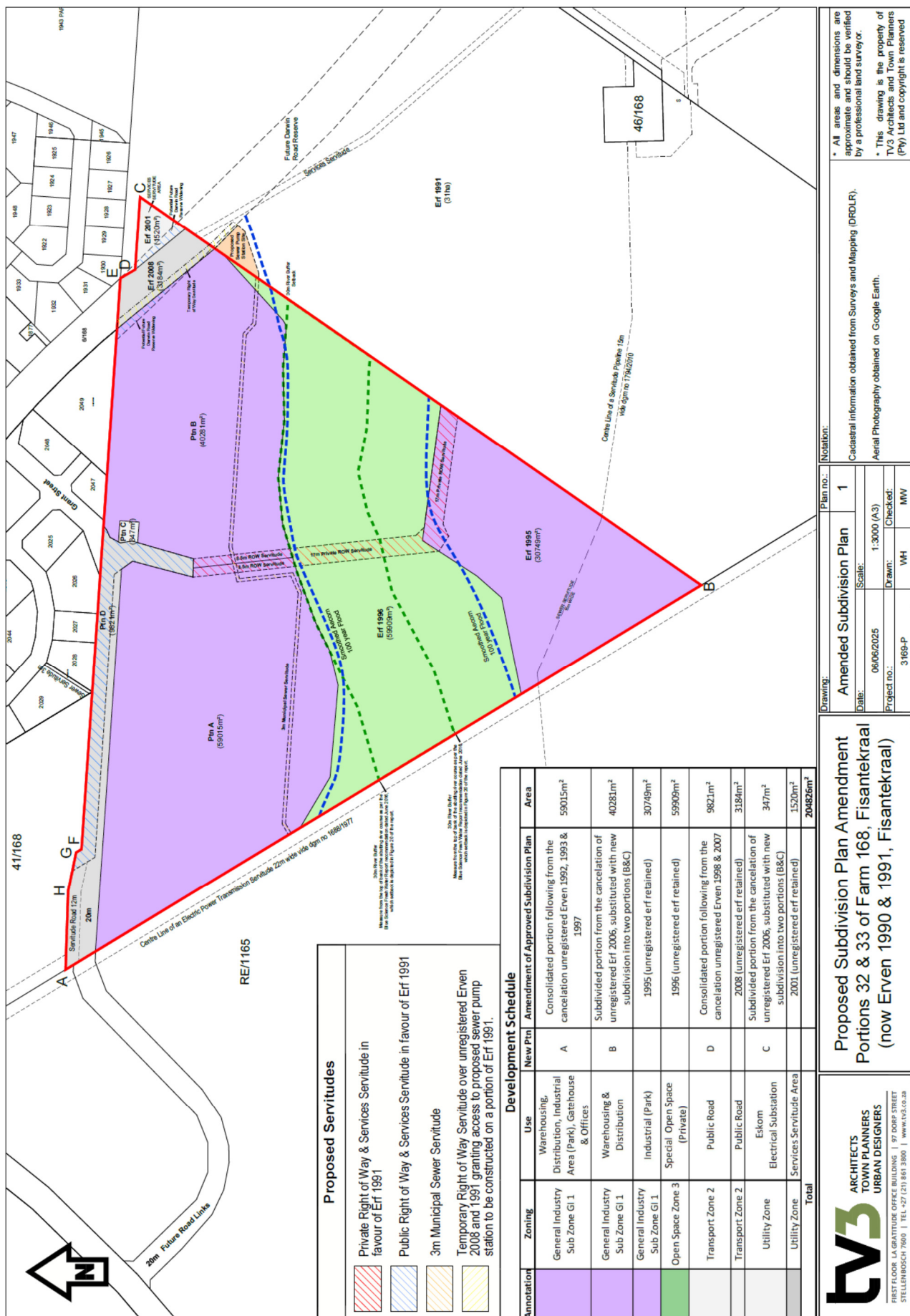


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APPENDIX A

SUB DIVISION PLAN



APPENDIX B:
ITS ITS TIA FOR ERVEN 1992, 1993 & 1997;
ERF 1995 AND ERF 2006