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**CK Rumboll & Partners**

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**ATTENTION: Ms Mandri Crafford**

Dear Madam,

**SWARTLAND MUNICIPALITY CEMETERY ON ERF 5662, MOORREESBURG: SITE TRAFFIC ASSESSMENT**

**1. INTRODUCTION**

CK Rumboll & Partners appointed Sturgeon Consulting (Pty) Ltd as part of the team as sub-consultants to undertake a Site Transport Assessment (STA) for the proposed Moorreesburg cemetery on Erf 5662 for the Swartland Municipality as shown in **Figure 1**. The site is located on the northeast corner of Agstein Avenue and Omega Street north of Moorreesburg and east of Main Road, as shown in **Figure 2**.

The site (Erf size  $\pm 5.0$ ha) is currently vacant. The Site Development Plan (SDP) of the proposed development is shown in **Figure 3** and **Annexure A**.

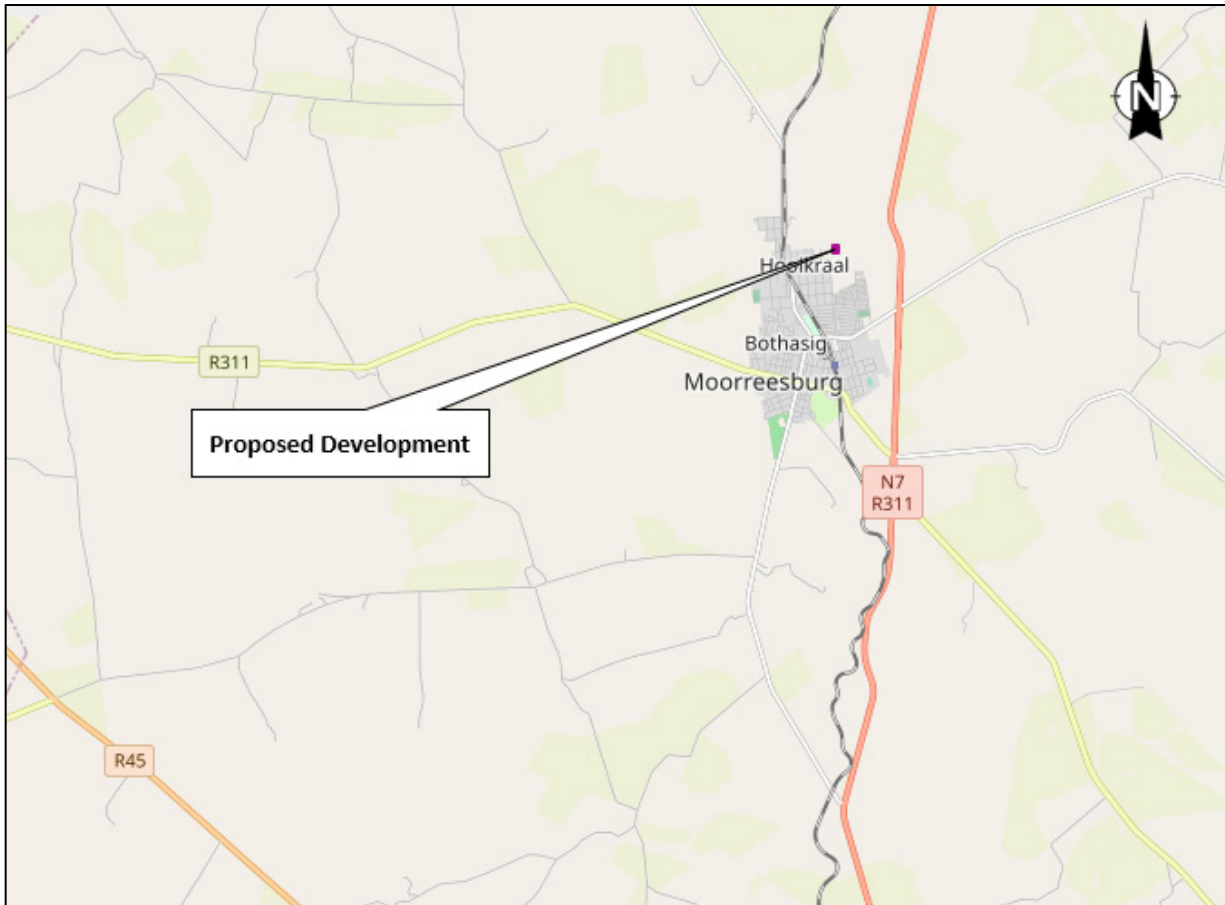


Figure 1: Locality Plan



Figure 2: Site Location

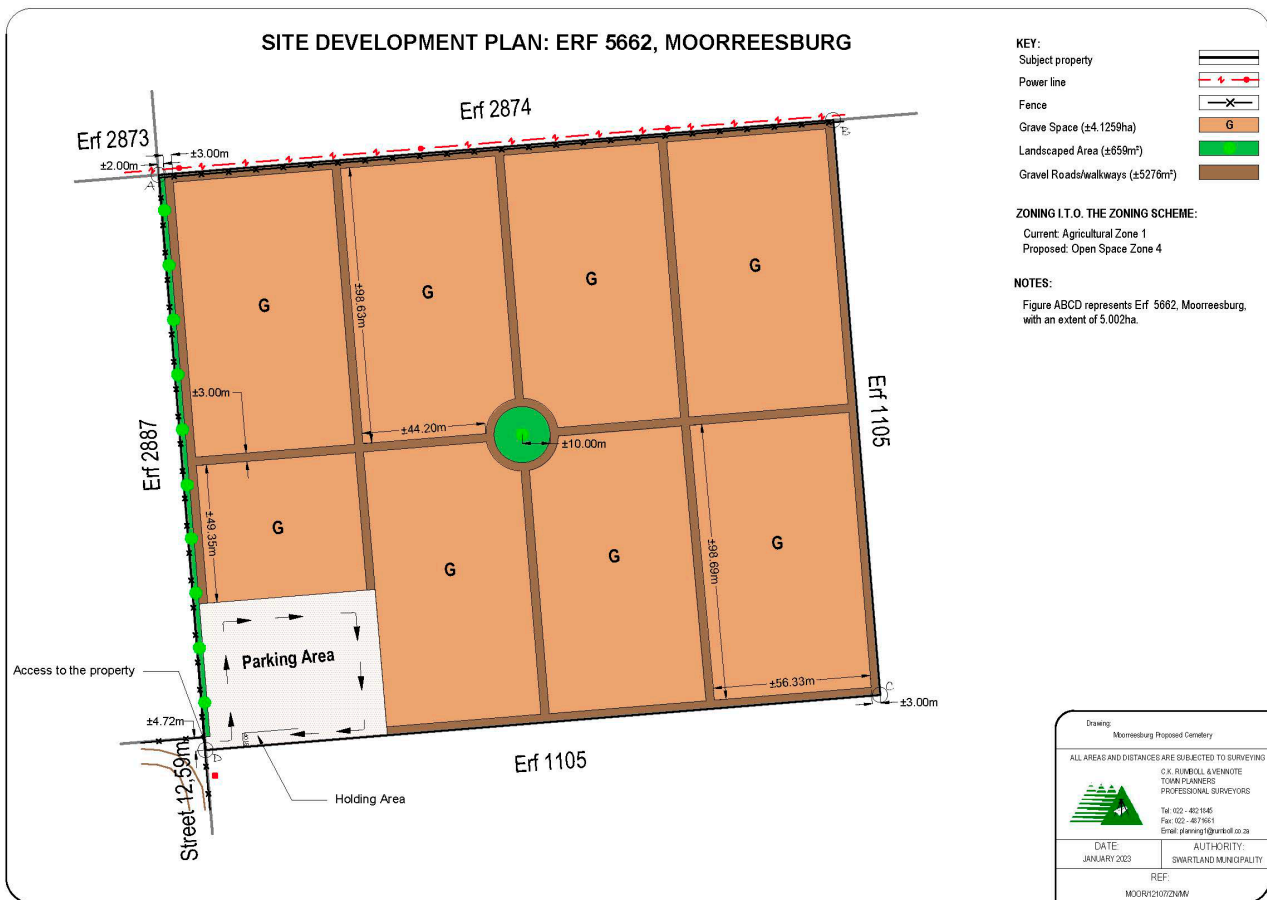


Figure 3: Site Development Plan

## 2. PURPOSE OF THE REPORT

The guideline document *TMH 16 Volume 1 South African Traffic Impact and Site Traffic Assessment Manual (2018)*, published by Committee of Transport Officials (COTO) was used to determine the extent of the traffic study and that a Site Traffic Assessment (STA) is required.

This STA will assess the transport infrastructure in terms of the access, internal road geometry and the on-site parking requirements related to the proposed development.

## 3. PROPOSED DEVELOPMENT

The proposed development will consist of a cemetery with a grave space of  $\pm 4.1259\text{ha}$ . The site's current zoning is Agricultural Zone 1 and is proposed Open Space Zone 4. Refer to **Annexure A** for the Site Development Plan (SDP).

## 4. EXISTING ROAD NETWORK

### 4.1. MAIN ROAD

Main Road is classified as a Class 4 residential access collector. This road is a two-lane surfaced undivided road (6.0m width) with gravel shoulders ( $\pm 1.5$ m wide) in the vicinity of the site. Between Piketberg Road (MR230) in the south and 9<sup>th</sup> Avenue in the north, Swartland Municipality is the road authority. North of 9<sup>th</sup> Avenue, Main Road is a proclaimed divisional road (DR1171) for which the Western Cape Government (WCG) is the controlling authority. The posted speed limit in the vicinity of the site is 60km/h.



### 4.2. AGSTEIN AVENUE

Agstein Avenue is a Class 5 minor road, two-lane undivided gravel road in the vicinity of the site. The posted speed limit east of the Main Road intersection is 30km/h and a portion of the road is surfaced from the Main Road intersection up to the access to the Moorreesburg Waste Disposal site ( $\pm 90$ m).



## 5. FUTURE ROAD PLANNING

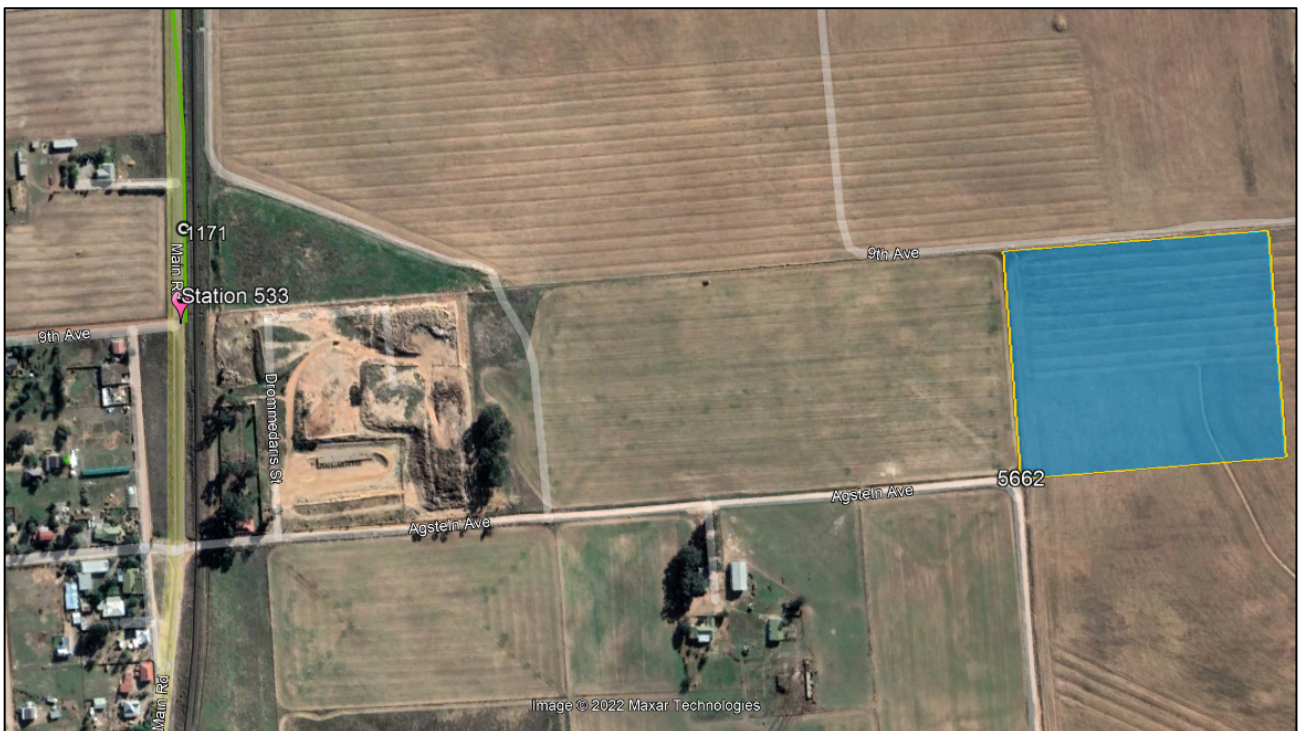
At the time of this report, no major road network changes are foreseen in the vicinity of the site that will have an impact on the proposed development.

## 6. ANALYSES HOURS

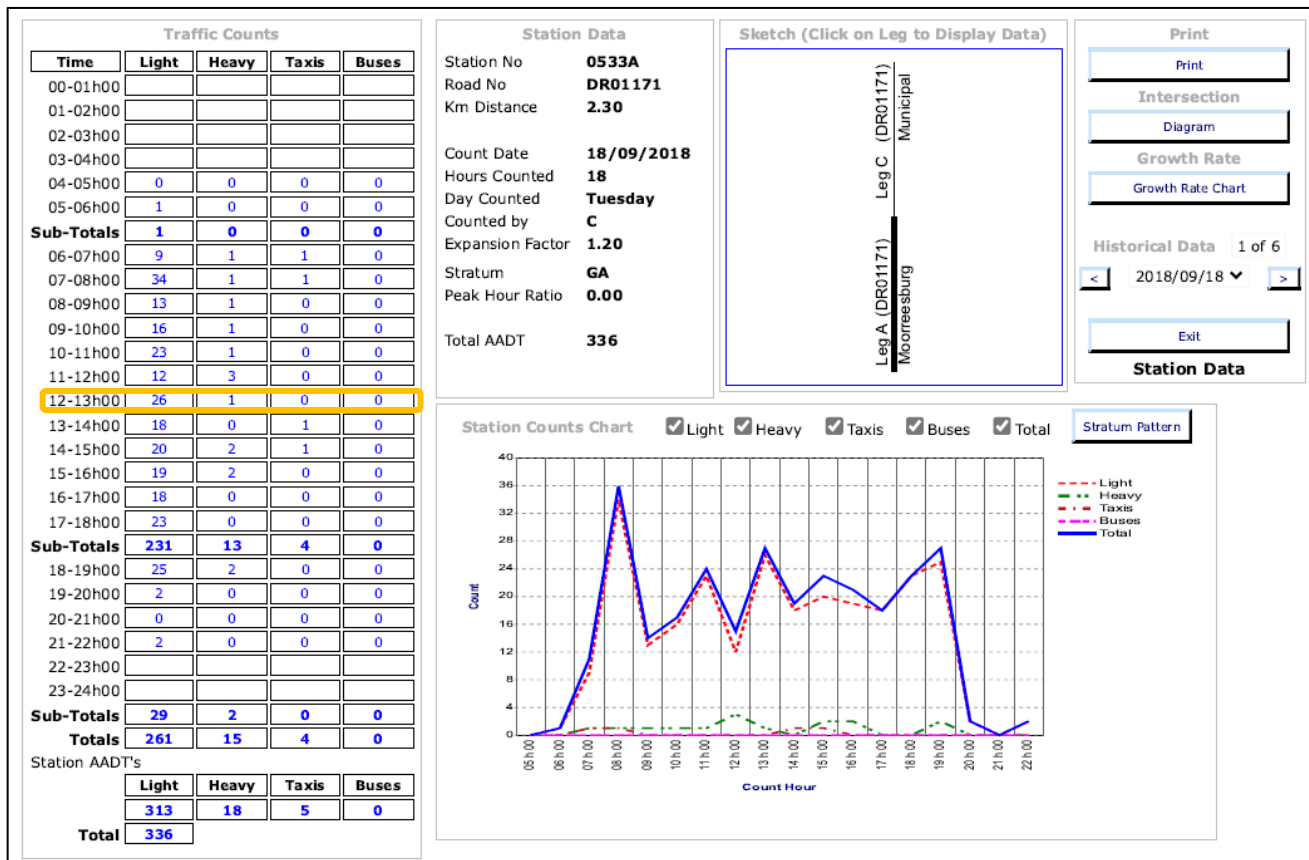
It was assumed that the worst case would be when a funeral coincides with the peak traffic flow on the adjacent road network. From **Section 7** below, the peak traffic flow along Main Road (DR1171) occurs between 12h00 and 13h00 during the week. Saturday traffic flows are expected to be lower, although it is expected that more funerals take place over a weekend.

## 7. EXISTING OPERATIONS

The Road Network Information System (RNIS) operated by the Western Cape Government Department of Transport and Public Works contains a Traffic Counting System (TCS) which serves the WCG and has been around since 1999. The main emphasis of the system is on Trunk, Main and Divisional Roads. The TCS comprises of two “types” of counts namely: Short Term and Permanent Counts. TCS has data for counting station (533) at km2.30 on DR1171 as shown below in **Figure 4** and **Figure 5**.



**Figure 4: Location of Existing RNIS Traffic Counting Station No. 533**



**Figure 5: RNIS Traffic Data for Station No. 533**

The last count at Station 533 took place on Tuesday, 18 September 2018. A growth rate of 3.41% per annum has been used based on the historical volumes from RNIS to obtain 2023 volumes. The midday peak hour therefore is approximately **32 vph** (two-way) on Main Road (DR1171). The estimated direction split is assumed to be 50% north and 50% south.

The Saturday count was assumed to be approximately 10% less than the midday peak hour. Therefore, a two-way traffic volume of approximately **29 vph** can be used for the 2023 Saturday peak hour. A split of 50/50 has been assumed.

## 8. TRIP GENERATION

The additional vehicle trips that will be generated by the proposed development are based on peak hour trip generation rates as provided in the *THM17 South African Trip Data Manual, August 2020* published by the Committee of Transport Officials (COTO). The land use for Cemetery (COTO566) was deemed the most appropriate land use code to be used for the proposed Moorreesburg cemetery.

**Table 1** presents the estimated trips to be generated by the proposed development on Erf 5662.

A percentage reduction factor for low vehicle ownership provided in the TMH17 manual can be applied. The proposed development therefore has the potential to generate a total of **12 vph trips** (9 inbound, 3 outbound) during the Midday peak hour and **24 vph trips** (12 inbound, 12 outbound) during the Saturday peak hour.

**Table 1: Estimated Trip Generation**

Land Use	Peak Hour	Units	Trip Rate	Directional Split		Trips		Total
				IN	OUT	IN	OUT	
Cemetery (COTO566)	Midday	4 Ha	4.00	75%	25%	9	3	<b>12</b>
	Sat		8.00	50%	50%	12	12	<b>24</b>

The resultant number of trips on the surrounding road network that will be generated by the proposed development is therefore very low (<25 peak hour trips) during both peak hours and will have an insignificant traffic impact on the surrounding road network. No further analysis will be undertaken, and no road upgrades are proposed.

## 9. SITE ACCESS

The vehicular access to the site will be on the north-eastern corner of the Agstein Avenue/Omega Street intersection, approximately 770m east of the Main Road /Agstein Avenue intersection and approximately 285m east of access to Erf 2888. The *Swartland Municipality: Municipal Land Use Planning By-Law (2020)* stipulates that 'No carriageway crossing may exceed 4m in width where it crosses the street boundary, and no combined carriageway may exceed 8m in width where it crosses the street boundary'.

The Site Development Plan (refer to **Annexure A**) shows the carriageway crossing width to be 4.72m wide. The access will be stop-controlled on the development side and will operate in a one-way direction in and out of the holding area as shown on the SDP. Vehicles will enter (given right of way) at the same time and then leave giving way to any entering vehicles. Appropriate signage can be implemented to guide motorists.

The proposed site vehicular access location to the proposed development is shown in **Figure 6** below. No access spacing or shoulder sight distance issues are expected. There is no proposed access control for the proposed development.



**Figure 6: Proposed Access Location**

## **10. SHOULDER SIGHT DISTANCES**

The Western Cape Government evaluates access requests according to the *Technical Recommendations for Highways: Geometric Design of Rural Roads* (TRH17, Pretoria, 1988) on routes similar to Agstein Avenue. The specific graph, which is used, is *Fig 2.3.2(a) - Shoulder Sight Distance for Stop Condition*. The speed limit on this section of Agstein Avenue was posted to be 30km/h.

The required shoulder sight distance (SSD) for a passenger vehicle (P), single unit (SU) vehicle and single unit plus trailer (SU+T) entering a road with a design speed of 30km/h, a road width of 7.5m, is 59m, 89m and 114m respectively as shown on *Fig 2.5.5(a)* below.

The access is located on the outside of the 90-degree bend of the road with unobstructed sight towards the left and right and no horizontal or vertical curves within the boundaries of the required sight distances. It was determined that there is sufficient sight distance in both directions, west and south, for a 30km/h design speed.

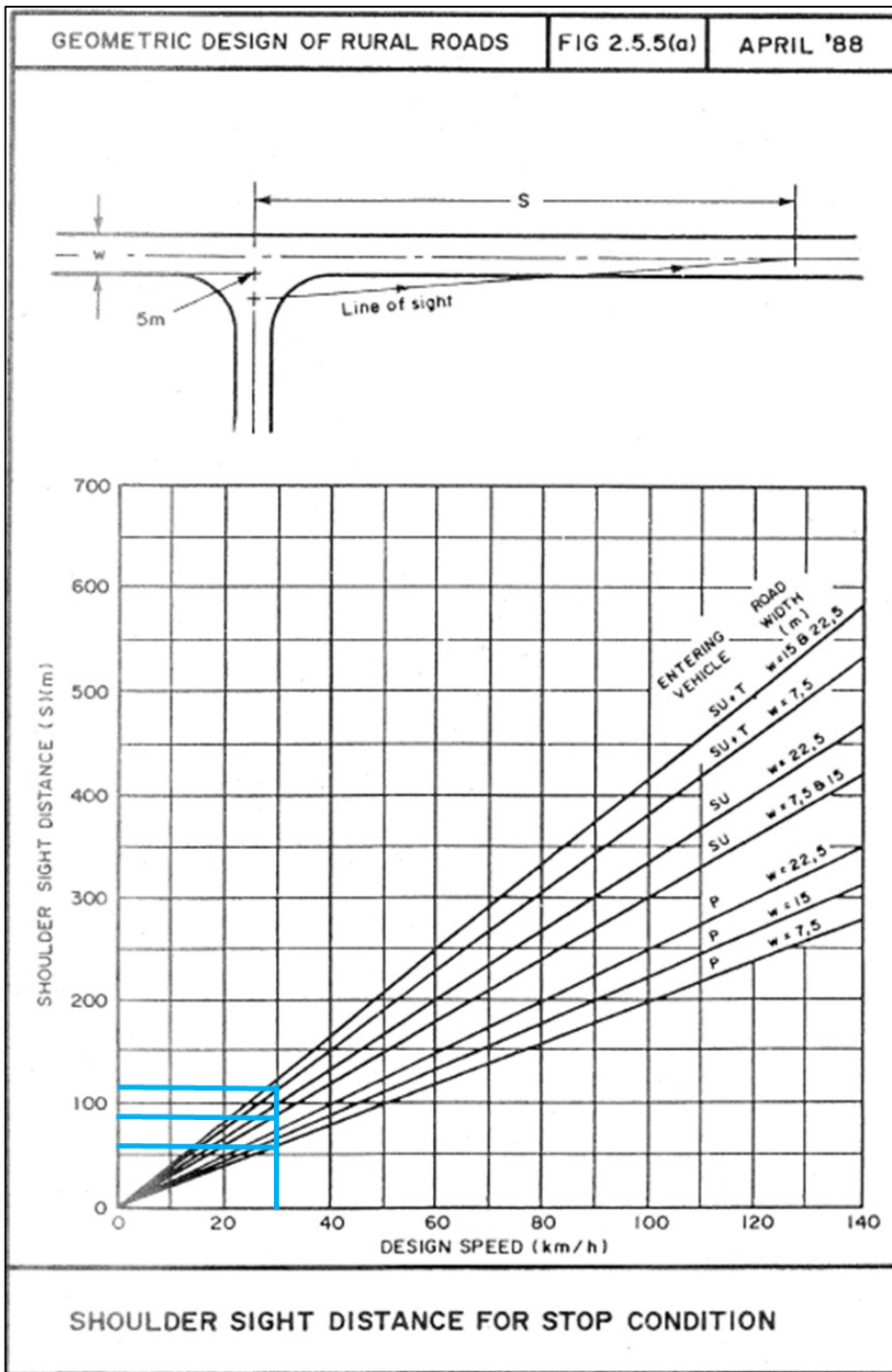


**Sight Distance Looking West  
(Agstein Ave)**



**Sight Distance Looking South  
(Omega St)**



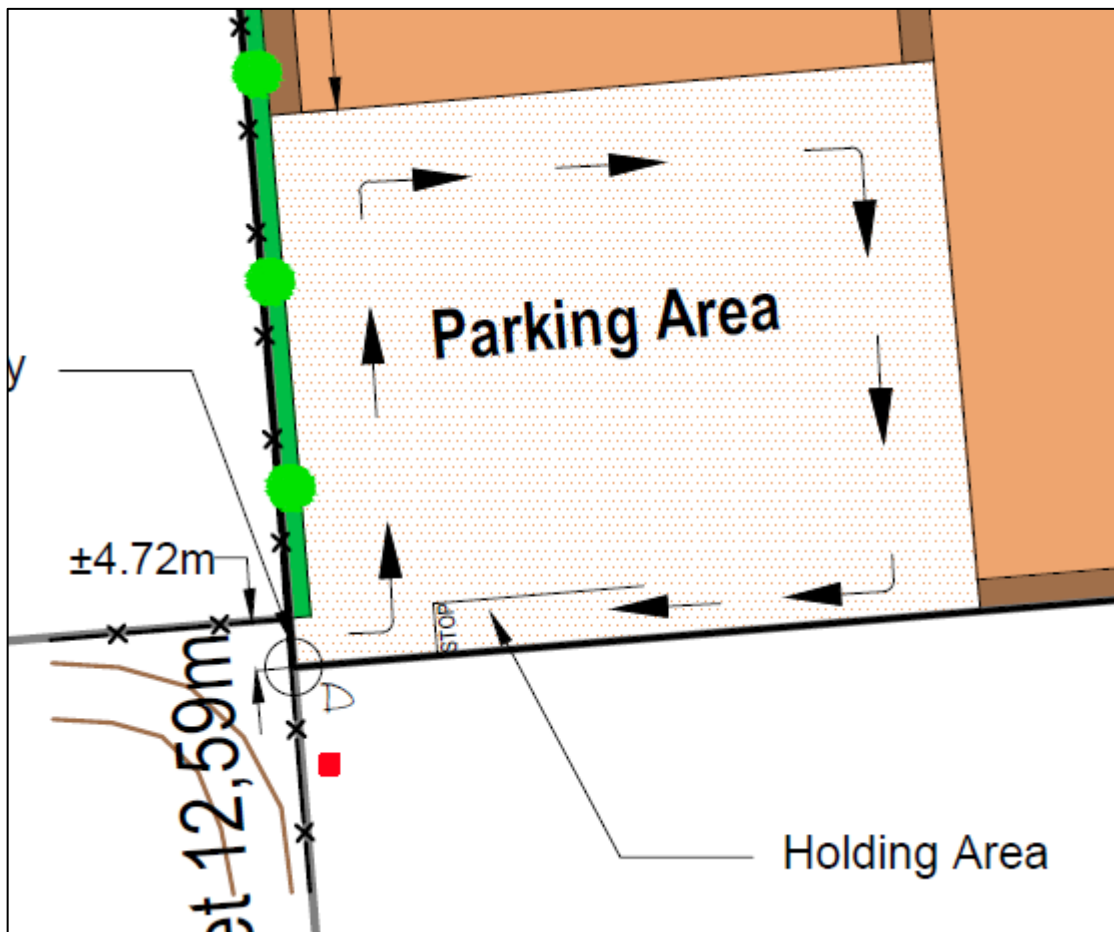


## 11. PARKING REQUIREMENTS

### 11.1. MINIMUM PARKING REQUIREMENTS

They are no minimum parking requirements suggested for a cemetery in the *Swartland Municipality: Municipal Land Use Planning By-Law (2020)*.

Sufficient space for parking (including buses and/or taxis), will be provided on-site within the allocated parking/holding area. Refer to **Figure 7**.



**Figure 7: Proposed Parking Area**

## **12. PUBLIC TRANSPORT AND NON-MOTORISED TRANSPORT**

### **12.1. PUBLIC TRANSPORT**

Very few minibus taxis and buses were observed travelling along Main Road or along Agstein Avenue. No public facilities are evident along these two roads in the vicinity of the site. It is assumed that minibus taxis and/or buses will bring people to the cemetery. The parking area will make provision for minibus taxis and buses to park. An existing minibus taxi rank is located in Central Street within the town of Moorreesburg, approximately 2.6km south of the site (as the crow flies). No additional public transport facilities are required for the proposed development.

## **12.2. NON-MOTORISED TRANSPORT (NMT)**

There are no NMT facilities along Main Road or along the gravel Agstein Avenue in the vicinity of the site. Pedestrian movements in the vicinity are deemed low and pedestrians tend to use the gravel verges alongside the Main Road if necessary. Since Agstein Avenue is a Class 5 road the expected pedestrian volumes are deemed to be very low. No additional NMT facilities are required for the proposed development.

## **13. CONCLUSIONS AND RECOMMENDATIONS**

Based on the evaluation in this report, the conclusions and recommendations are as follows:

- The proposed development will consist of ±4Ha for a Cemetery on Erf 5662 in Moorreesburg for the Swartland Municipality.
- The proposed development has the potential to generate **12 trips** (9 inbound, 3 outbound) during the Midday peak hour and **24 trips** (12 inbound, 12 outbound) during the Saturday peak hour.
- The number of trips that will be generated by the proposed development is very low (<25 peak hour trips) and will have an insignificant traffic impact.
- The Main Road (DR1171) north of Agstein Avenue carries approximately **400 vehicles per day** two-way and approximately **32 vph** on a midday and approximately **29 vph** on a Saturday peak hour for 2023.
- No upgrades are proposed to the Main Road/Agstein Avenue intersection.
- The proposed access to the development will be at the north-eastern corner of the Agstein Avenue/Omega Street intersection approximately 770m east of the Main Road/Agstein Avenue intersection. There are no issues with sight distance.
- The site access width will be 4.72m wide with a holding area where two vehicles will not be required to pass each other.
- The access intersection will be stop-controlled on the development side.
- Sufficient parking bays (including buses) will be provided on-site.
- No further non-motorised transport or public transport facilities are required in the vicinity of the site.
- The new access to the cemetery must be designed and approved by the Swartland Municipality before construction commences.

From a traffic engineering perspective, the approval of the application for this development is supported and it is recommended that the proposed development be approved.

Please do not hesitate to contact us should you have any queries.

Yours faithfully,



**Sarah Larratt Pr Tech Eng**  
For: STURGEON Consulting

## **ANNEXURE A: SITE DEVELOPMENT PLAN**

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# SITE DEVELOPMENT PLAN: ERF 5662, MOORREESBURG

## KEY:

Subject property	
Power line	
Fence	
Grave Space (±4.1259ha)	
Landscaped Area (±659m²)	
Gravel Roads/walkways (±5276m²)	

## ZONING I.T.O. THE ZONING SCHEME:

Current: Agricultural Zone 1  
Proposed: Open Space Zone 4

## NOTES:

Figure ABCD represents Erf 5662, Moorreesburg, with an extent of 5.002ha.



Drawing:  
Moorreesburg Proposed Cemetery

ALL AREAS AND DISTANCES ARE SUBJECT TO SURVEYING

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